UNIVERZITA KARLOVA

Právnická fakulta

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KOSMICKÁ SMLOUVA V KONTEXTU 21. STOLETÍ

Diplomová práce

Vedoucí: prof. JUDr. Mahulena Hofmannová, CSc.
Katedra: Katedra mezinárodního práva
Datum vypracování práce: 30. 11. 2017

CHARLES UNIVERSITY

Faculty of Law

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THE OUTER SPACE TREATY IN THE CONTEXT OF 21ST CENTURY

Diploma Thesis

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Department: Department of International Law
Date of Submission: November 30, 2017

Čestné prohlášení

Prohlašuji, že jsem předkládanou diplomovou práci vypracovala samostatně, všechny použité zdroje byly řádně uvedeny a práce nebyla využita k získání jiného nebo stejného titulu. Vlastní text diplomové práce včetně poznámek pod čarou čítá 119 928 znaků.

V Praze dne 30. listopadu 2017

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Zuzana Žaludová

PODĚKOVÁNÍ

Touto cestou bych ráda poděkovala mé vedoucí diplomové práce prof. JUDr. Mahuleně Hofmannové, CSc., za osobní přístup a podnětné rady, které mi byly poskytnuty při vypracování této práce.

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1. INTRODUCTION

Space law is characterized by high fragmentation; the basis of the space law forms the five core UN treaties. The 1967 Outer Space Treaty ("OST"), fully named *Treaty on Principles Governing the Activities of States in the Exploration and Use of Outer Space, including the Moon and Other Celestial Bodies,* is the first binding document for the management and governance of outer space that came into force.[1] The following four UN treaties elaborate and further clarify the provisions of the Outer Space Treaty, while providing legally enforceable measures regarding the violation of the OST's articles.[2]

Considering the progressive development in technology and the field of space, emerged matters connected with the development require a new set of standards and rules. The mechanisms introduced 50 years ago, are not completely sufficient for the requirements of the twenty-first century, given different conditions set by new space activities. The number of actors in space is increasing, especially within the private sector.

Emerged space activities, such as GPS systems and asteroid mining, bring along other more complicated issues, for instance, proliferation of space debris in Earth's orbit, which was not a topical issue prioritized 50 years ago. To keep stability in the environment is now more difficult given the fact, that technology has outrun the international governance framework for outer space.[3]

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[1] Outer Space Treaty: 50 years later. *NATALLIA KHANIEJO* [online]. 2017 [cit 2017-09-18].

[2] Ibid.

[3] BATSANOV, S., *The Outer Space Treaty then and now*, p. 51 in Celebrating the Space Age 50 Years of Space Technology, 40 Years of the Outer Space Treaty. Conference report. *UNIDIR/2007/4* [online]. 2007 [cit. 2017-09-13].

The subject of the thesis I find a currently interesting and dynamic below-the-radar topic. The aim of the thesis is to analyze the Outer Space Treaty, to define its role in the 21st century considering the emerged space activities and to outline the plausible future position of the Treaty. It is essential to decide, how should the international community deal with the occurred changes, which are not currently covered by the OST and the UN treaties.

The thesis outlines the origin of the space law and comparable areas of international law. The national space law is introduced, which is discussed later on in connection with the Article VI. As a following chapter, it is presented the Outer Space Treaty, its fundamentals, history and individual provisions. The Articles are presented in context of their content in combination with current topics. Subsequently, the thesis addresses the issues which face the current legal framework with the Outer Space Treaty in its center. And conclusively, foregoing the discussion, the plausible outcomes are outlined, which offers the international community, at present.

2. SPACE LAW

2.1 ORIGIN OF SPACE LAW

The United Nations General Assembly recognized the need for international cooperation on the topic of space law, mostly due to awareness of the development of rocket technology during World War II and preparations to for the International Geophysical Year in 1957-58 (IGY), which also included the peaceful exploration of outer space.[4] It was necessary to bond the expected expansion of space activities towards maintaining peace and possible benefits from simultaneous interest among the international community.[5] The United Nations is a key international body in the law-making process related to the outer space.[6] The United Nations General Assembly installed a special body, at first in 1958 as an Ad Hoc committee and in 1959 as a permanent Committee on the Peaceful Uses of Outer Space (COPUOS)[7]. Subsequently, COPUOS has established two subcommittees – the Scientific and Technical Subcommittee (STSC) and the Legal Subcommittee (LSC) after considerations of proposals which were submitted by its Member states. It is worth noting that COPUOS' and both Subcommittees' decision process is led by the rule of consensus.

COPUOS and both Subcommittees are located in Vienna together with Office for Outer Space Affairs (OOSA) which was originally set up by UN Secretariat as an Outer Space Affair Division (OSAD) in Department of Political and Security

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[4] BRÜNNER, CH., SOUCEK, A., *Outer Space in Society, Politics and Law*, 8. vyd., Springer-Verlag/Wien: SpringerWienNewYork, 2011, p. 221 (hereinafter "Brünner, Soucek, *Outer Space in Society, Politics and Law")*

[5] Res. 1348 (XIII), 18 December 1958.
DIEDERIKS-VERSCHOOR, I. H. P., *Introduction to Space Law, 280,* Kluwer Law International, 2008, p. 23 (hereinafter "Diederiks-Verschoor, *Introduction to Space Law*")

[6] TRONCHETTI, F., *Fundamentals of Space Law and Policy*, 2013, Vol. 1. Springer: SpringerBriefs in Space Development, p. 85. (hereinafter "Tronchetti, *Fundamentals of Space Law and Policy*")

[7] Res. 1472 (XIV), 12 December 1959.

Council Affairs in New York. In Vienna were also held UN Conferences on the Peaceful Uses of Outer Space in 1968, 1982 and 1999.[8]

United Nations adopted in 1961 the resolution 1721 (XVI), which recognized "*that the exploration and use of outer space should be only for the betterment of mankind and to the benefit of states irrespective of the stage of their economic or scientific development*"[9]. Two fundamental principles were appointed: "international law including the Charter of the UN applies to outer space and celestial bodies" and "celestial bodies are free for exploration and use by all states in conformity with international law and are not subject to national appropriation".[10] Furthermore, the UN Declaration of Legal Principles Governing the Activities of States in the Exploration and Use of Outer Space, approved by General Assembly Resolution 1962 (XVIII) on 13 December 1963 was proposed on the above-mentioned principles.[11]

The non-binding Declaration contained a number of fundamental principles which were then transformed into a legally binding instrument a few years later. The final law regulation, Treaty on Principles Governing the Activities of States in the Exploration and Use of Outer Space, including the Moon and Other Celestial Bodies ("The Outer Space Treaty", "OST") was signed simultaneously in London, Moscow and Washington on 27 January 1967[12] and entered into force on 10 October 1967.

The Outer Space Treaty is a keystone on which latter space law treaties are based and it has become the main legally binding instrument of present international space

[8] Brünner, Soucek, *Outer Space in Society, Politics and Law,* p. 225.

[9] Res. 1721 (XVI), 20 December 1961.

[10] Ibid.

[11] E.R.C. van Bogaert, Aspects of Space Law, 1986, pp. 38-39.

[12] Diederiks-Verschoor, *Introduction to Space Law,* p. 136.

law. As of August 2017, 105 countries are parties to the OST and additional 23 states have signed the treaty but have not completed ratification.[13]

Within twelve years following the entry into force of the OST, there were four other treaties concluded. The term "space law" is often associated with the rules set by these five international treaties.[14] The core substance of international space law consists of the UN Space Treaties as follows; The Treaty on Principles Governing the Activities of States in the Exploration and Use of Outer Space, including the Moon and Other Celestial Bodies, 2. The Agreement on the Rescue of Astronauts, the Return of Astronauts and the Return of Objects Launched into Outer Space, 3. The Convention on International Liability for Damage Caused by Space Objects ("the Liability Convention"), 4. The Convention on Registration of Objects Launched into Outer Space ("the Registration Convention"), 5. The Agreement Governing the Activities of States on the Moon and Other Celestial Bodies ("the Moon Agreement"). The implementation of these five UN treaties oversees COPUOS as well as other agreements relating to activities in outer space.

A distinctive feature of space law is that space law consists mostly of "conventional law" which encompasses conventions, international treaties and other international agreements. The treaties are mostly multilateral and contain the basic rules and principles because the international cooperation was recognized as essential in space law to avoid uncontrolled activities. This outcome has been noted by the UN General Assembly in 1959 and the United Nations Committee on the Peaceful Uses of Outer Space ("COPUOS") was established as an ad hoc committee, shortly after the launch of Sputnik. In the same year, it was formally established by United Nations resolution 1472 (XIV).

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[13] Res 2222 (XXI). Treaty on Principles Governing the Activities of States in the Exploration and Use of Outer Space, including the Moon and Other Celestial Bodies signed 16 December 1966, effective 3 January 1976, 18 UST2 2410; TIAS3 6347; 610 UNTS4 205, (hereinafter "Outer Space Treaty")

[14] Space Law. *UNOOSA* [online]. 2017 [cit 2017-11-29].

Since then the recommendations and discussions of COPUOS are fundamental in creating the basic structure of space law.[15] The general goal of COPUOS is "t*o review the scope of international cooperation in peaceful uses of outer space, to devise programmes in this field to be undertaken under United Nations auspices, to encourage continued research and the dissemination of information on outer space matters, and to study legal problems arising from the exploration of outer space.*"[16]

Another international body dealing with the space law is The United Nations Office for Outer Space Affairs ("UNOOSA"). It is part of the United Nations Secretariat and its seat is at the United Nations Office in Vienna. Initially, the UNOOSA was created as a small expert unit within the UN Secretariat in New York to assist the ad hoc Committee on the Peaceful Uses of Outer Space established by the General Assembly in its resolution 1348 (XIII) of 13 December 1958.[17] In 1962 it became a unit within the Department of Political and Security Council Affairs and was transformed into the Outer Space Affairs Division of the Department in 1968. The Division was transformed into the Office for Outer Space Affairs within the Department for Political Affairs in 1992, and one year later the Office was relocated to the United Nations Office at Vienna.

The UNOOSA implements the decisions of the UN General Assembly and of the COPUOS. The objectives of the Office are to support the intergovernmental discussion in COPUOS and its Legal Subcommittee[18] and Scientific and Technical Subcommittee[19] and to assist developing countries in using space technology for development. The Office's mandate was several times

[15] Diederiks-Verschoor, *Introduction to Space Law,* p. 23.

[16] Committee on peaceful uses of outer space to hold forty-sixth session in Vienna, 11-20 June, Press Release. *UNITED NATIONS* [online]. 2003 [cit 2017-10-16].

[17] COPUOS History. *UNOOSA* [online]. 2017 [cit 2017-10-15]. Available at <http://www.unoosa.org/oosa/en/ourwork/copuos/history.html>.

[18] Legal Subcommittee: 2015. *UNOOSA* [online]. 2017 [cit 2017-10-23].

[19] Scientific and Technical Subcommittee: 2015. *UNOOSA* [online]. 2017 [cit 2017-10-23].

adjusted to wider engagement, its agenda was extended to the coordination of the inter-agency cooperation within the UN on the use of space technology called UN-Space[20], the implementation of the UN Programme on Space Applications[21] and the UN-SPIDER - the Programme for disaster risk management and emergency response[22]. In addition, the Office furthermore maintains the coordination and cooperation with space agencies and intergovernmental and non-governmental organizations involved in space-related activities and, in the name of the Secretary-General of the UN, it maintains the Register of Launched Objects into Outer Space.

2.1.1 Space Law Fundamental Principles

Space law fundamental principles have been formulated by the Legal Subcommittee of the UN Committee for the Peaceful Use of Outer Space, number of these principles guide the conduct of space activities[23], such as the freedom of exploration and use of outer space by all states without discrimination and space being the province of all humankind. Following principles are the prohibition of national appropriation of outer space and celestial bodies; equal rights for all States to free use of outer space throughout its continuity; freedom of scientific investigation of outer space; preservation of sovereign rights of States over the space objects launched by them; collaboration of States with the aim of rendering assistance to the crews of space ships in emergencies[24]. Space law addresses various matters, for instance, liability for damages caused by space objects, the settlement of disputes, the preservation of the space and Earth environment and the rescue of astronauts.

[20] *UNCOSA* [online]. 2007 [cit 2017-08-27].

[21] United Nations Programme on Space Applications. *UNOOSA* [online]. 2017 [cit 2017-09-13].

[22] *UN SPIDER* [online]. 2017 [cit 2017-08-27].

[23] Space Law. *UNOOSA* [online]. 2017 [cit 2017-11-29].

[24] *Brünner, Soucek, Outer Space in Society, Politics and Law,* p. 476.

2.2 COMPARABLE AREAS OF INTERNATIONAL LAW

Despite the proximity of the space law and the air law, more similarities abound the law of the sea. Although the law of the sea evolved on a different background – long practice of law of states and private operators. Next to the space law, the law of the sea is also much older and more developed. A worth noting outcome of the comparison may be the possibility to foresee the evolution of the space law and thus the plausible use of analogy while solving various legal issues.[25]

The space law has evolved on principles before most activities in outer space were actually undertaken. The space law is established rather on moral and political principles due to the immediate necessity to maintain steadiness during the Cold war.[26]

2.2.1 The Law of the Sea

Unlike oceans, space remained completely unexplored until recent years. Concerning space, the necessity was to establish new legal system before the practical discovering of the new field. The evolution of the law of the sea has taken place over several centuries. Contemporary law of the sea consists of customary state behavior, recognized general principles of law, and multilateral treaties.[27] Thus the difference from the space law is that "*past experiences hold valuable lessons for the present and the future developments of ocean policies*"[28]. Within the heritage of mankind principle, the controversial topic for the international legal community is the deep seabed within the law of the sea, its regulation but also ownership and control of the valuable resources. Similar problems encounter also developers of the space law. Unlike the seabed resources,

[25] Brünner, Soucek, *Outer Space in Society, Politics and Law,* p. 247.

[26] Ibid, p. 248.

[27] LEWIS, R. E., "*An analysis of the law of the sea and outer space law: claims over the natural resources of the "commons*". Master's Theses. Paper 539 (1987) [online]. 1987 [cit. 2017-08-25], p. 39.

[28] Ibid, p. 40.

the resources of outer space are highly questionable, not forgetting the dealing with necessary technology to reach these sources.[29]

The OST contains analogous articles according to Convention on the High Seas of 1958. Therefore, developing the law of the outer space has its roots in gained knowledge from the law of the sea and expectation of the obstacles which had faced the developers of the sea law. Although the common heritage principle was firstly established in the proceedings of the outer space law, the credit for its introduction has been given to the law of the sea developers.

2.2.2 The Antarctic System

The Antarctica and outer space share some common features and the given nature of an environment has a great impact on its legal status, although for historical reasons the legal statuses of both environments are rather different. Nevertheless, despite existing claims by states on Antarctica and the acceptance of the non-appropriation principle of outer space, both environments share common strategic and scientific aspects.[30] Like the outer space activities, also the Antarctic activities took place and were strengthened by the International Geophysical Year in 1957-1958. The legal regime in Antarctica is very close to the legal situation on the Moon and other celestial bodies. The Antarctic Treaty of 1959 was a potential model for outer space legislation.[31] The Article IV of the Outer Space Treaty and the Article I of the Antarctic Treaty do have almost similar wording.[32]

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[29] Ibid.

[30] KERREST, A., *"Outer Space as International Space: Lessons from Antarctica*", Smithsonian Institution Scholarly Press. Science Diplomacy: Antarctica, Science, and the Governance of International Spaces, p. 135 (2011). (hereinafter "Kerrest, *Outer Space as International Space: Lessons from Antarctica")*

[31] LYALL, F. B. LARSEN, P. B., *Space Law A Treatise*, Ashgate Publishing Limited, Vol. 1, 2009, p. 55 (hereinafter "Lyall, Larsen, *Space Law A Treatise*")

[32] The Antarctic Treaty (1959) consists of 14 Articles, which the Article I as follows: "1. Antarctica shall be used for peaceful purposes only; any military measures, with the exception of use of military assets for scientific research or any other peaceful purpose, are prohibited."

The difference in the Antarctic system and the Outer space is in its use, while the idea of the strategic and military use of outer space is not abandoned. In Antarctica, the major role plays the scientific activities, next to it the commercial activities are negligible and in contrary, in outer space the commercial activities are very important and profitable.[33] Moreover the boundaries of Antarctica are clearly specified unlike the space and its absenting limitation.[34] Nevertheless, the Antarctic system remains close to the outer space in some characteristics,[35] for instance, both environments wish to achieve the freedom of scientific investigation.[36]

2.3 NATIONAL SPACE LAW

The need for space regulation on the national level had arisen given the increased number of activities of space actors in outer space. Certain space activities do have a great commercial purpose, which attracted the private actors to become active in this field. This trend led also to the privatization of several space-related intergovernmental organizations, the EUTELSAT, INTERSAT, for instance. Those bodies became private operators under national law, which means they are not subjects to the international law in general.[37] Moreover, space activities are being developed on universities or research institutions for their purposes as a quite affordable choice.

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[33] This lack of involvement may be the reason why COSPAR, which is an observer to COPUOS, despite the fact that it is the main intergovernmental body for regulating outer space, does not attend (at least since 2000) any meeting of the Main Committee or of the Legal Subcommittee and not always the meeting of the Scientific and Technical Subcommittee. Since 2000, COSPAR was not represented at the 2010, 2009, and 2006 meetings; UN COPUOS Report A/AC/105/869, at point 6.

[34] KOPAL, V., DIEDERIKS-VERSCHOOR, I.H.P. *An Introduction to Space Law*. Vol. 3, Alpen aan den Rijn: Kluwer Law International, 2008, p. 5

[35] Kerrest, *Outer Space as International Space: Lessons from Antarctica*, p. 140.

[36] KOPAL, V., DIEDERIKS-VERSCHOOR, I.H.P. *An Introduction to Space Law*. Vol. 3, Alpen aan den Rijn: Kluwer Law International, 2008, p. 5

[37] VON DER DUNK, F. TRONCHETTI, F., *Handbook of Space Law*, Edward Elgar Publishing, p. 127. (hereinafter „von der Dunk, Tronchetti, *Handbook of Space Law*")

The international space law addresses states, international organizations but the private sector remains without legislation, not including the liability of a state over its private actors in space matters. In order to follow the principles, set by the international space law, the national law must be implemented, which will be then applicable to the private actors active in space matters. Scholars made several efforts to raise awareness for the need for the national space legislation, although only a few states do have sufficient legal regimes concerning this matter,[38] to be specific at present it is 22 states.[39] However, there exists a remarkable diversity among states and their national space regulations, probably due to their specific needs and practical considerations of their own future activities.[40]

Implementation of Article VI of the OST requires existence of national legislation to authorize and supervise national space activities. States enacts national space legislation, mostly because of hazardous nature of such activities. The mechanism of supervision is needed in order to prevent harm by space operations carried out by private entities. Moreover, the national legislation provides the control of private entities and possible violations of state's international obligations. And it is worth noting, that particularly the Outer Space Treaty, the Liability Convention and the Registration Convention impose numerous obligations on governments that cannot be transferred to private entities.[41]

The scope of national space legislation does not have to be necessarily limited to the implementation of Article VI of the OST, it may serve other purposes, such as compliance of private activities with safety standards and debris-mitigation rules.[42]

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[38] von der Dunk, Tronchetti, *Handbook of Space Law, p. 128.*

[39] National Space Law Collection. *UNOOSA* [online]. 2017 [cit 2017-09-15].

[40] von der Dunk, Tronchetti, *Handbook of Space Law*, p. 185.

[41] Tronchetti, *Fundamentals of Space Law and Policy*, p. 27.

[42] Ibid.

The Legal Sub-Committee of COPUOS in 2007 introduced a new initiative – agenda item under a work plan called *General exchange of information on national legislation relevant for the peaceful exploration and use of outer space*.[43] The working group was established and in March 2012 it concluded its final report.[44] In the same year, the Legal Sub-Committee presented new regular item on its agenda; *National legislation relevant to the peaceful exploration and use of outer space*[45], which enabled the continuous work on the national space legislation issues.[46]

3. THE 1967 OUTER SPACE TREATY

One of the first decisive outcomes of COPUOS was issuing the fundamental agreement on outer space in 1967 fully named *Treaty on Principles Governing the Activities of States in the Exploration and Use of Outer Space, including the Moon and Other Celestial Bodies.* The Outer Space Treaty was based largely on the Declaration of Legal Principles Governing the Activities of States in the Exploration and Use of Outer Space, which had been adopted by the General Assembly in its resolution 1962 (XVIII) in 1963 plus new provisions. The Treaty had been adopted by the UN General Assembly on 19 December 1966 – resolution (XXI), it has been opened for signature (by the three depository governments: the Russian Federation, the United Kingdom and the United States of America). In 1967 twenty-four countries ratified the Treaty and up to 10 October 2017,

[43] von der Dunk, Tronchetti, *Handbook of Space Law*, p. 179, see Report of the Legal Sub-Committee on its forty-sixth session, Vienna, 26 March–5 April 2007, UN Doc. A/AC./105/891, para 136.

[44] Ibid, see See Report of the Working Group on National Legislation Relevant to the Peaceful Exploration and Use of Outer Space, supra n. 288, para. 6.

[45] Ibid, p. 181, see See Report of the Legal Sub-Committee on its fifty-first session, Vienna, 19–30 March 2012, UN Doc. A/AC./105/1003, para. 177.

[46] von der Dunk, Tronchetti, *Handbook of Space Law,* p. 181.

105 states[47] are parties to the Treaty and another 23 already signed the Treaty but did not complete the ratification.[48]

The OST was the first step towards the development in the space law area.[49] The Treaty set a delicate balance between the strategic interests of the Cold War superpowers in space.

The Treaty provides basic framework on international space law including fundamentals principles: Article I states that the use of outer space should be free for all States and exploration of outer space shall be done to benefit all countries; Article II presents, that any planet, Moon or a celestial body shall not be subject to national appropriation by a claim of sovereignty; Article IV bans states to place weapons of mass destruction in orbit of Earth and install them or station in outer space or on the Moon or any other celestial bodies and state parties retain jurisdiction and control over its launched object and they are also liable for damages caused by such a space object under Article VII.[50]

All states, with no exception, might adhere the OST, due to Article XIV. However, due to Article III OST the space activities may be carried out only in accordance with the Charter of the UN and the general principles of international law.[51]

[47] United Nations Office for Outer Space Affairs celebrates 50th anniversary of the Outer Space Treaty. *UNOOSA* [online]. 2017 [cit 2017-28-11].

[48] Treaty on Principles Governing the Activities of States in the Exploration and Use of Outer Space, including the Moon and Other Celestial Bodies. *UNODA* [online]. 2017 [cit 2017-11-11].

[49] Treaty on Principles Governing the Activities of States in the Exploration and Use of Outer Space, including the Moon and Other Celestial Bodies (Outer Space Treaty). Overview. *NTI* [online]. 2017 [cit 2017-11-11].

[50] Outer Space Treaty, Articles I, II, IV, VII.

[51] Article III, Outer Space Treaty.

3.1 THE INTERNATIONAL CUSTOMARY LAW

The customary international law has a fundamental role in the space law.[52] The existence of customary law is conditioned by "an opinion of law" (*opinio juris*) and "usage", it is characterized as an unwritten law which is dependent on the consistent conduct of states and the belief that it follows a legal obligation.[53]

There is a possible way to withdraw from the OST, under its Article XVI, although the state shall still continue the obligations in the Treaty, which passed into international customary law.[54] Many experts support the idea, that the fundamental provisions of the OST are well-observed and respected and therefore, as the customary international law, the set of rules in the OST binds even the states who are not formally a party to the Treaty.[55] For instance particularly the Articles I, II and III abound status of customary law as well as treaty law.[56]

The principal UN Treaties covering the space matters are strong international legal instruments in the middle with the Outer Space Treaty, referred to as the "Treaty on General Principles"[57] and they partially fall under the customary international law.

[52] Answers from the Chair of the Space Law Committee of the International Law Association (ILA) to questions by the Chair of the Working Group of the LSC. *LEGAL SUBCOMMITTEE* [online]. 2015 [cit 2017-11-10].

[53] Brünner, Soucek, *Outer Space in Society, Politics and Law,* p. 621.

[54] Lyall, Larsen, *Space Law A Treatise*, p. 41.

[55] 50 years of the Outer Space Treaty. *SCOTT HATTON* [online]. 2017 [cit 2017-10-25].

[56] Lyall, Larsen, *Space Law A Treatise,* p. 59.

[57] Answers from the Chair of the Space Law Committee of the International Law Association (ILA) to questions by the Chair of the Working Group of the LSC. *LEGAL SUBCOMMITTEE* [online]. 2015 [cit 2017-11-10].

3.2 THE ARTICLES OF THE OUTER SPACE TREATY

3.2.1 The Title of the Outer Space Treaty

The full title of the Outer Space Treaty reads as follows *Treaty on Principles Governing the Activities of States in the Exploration and Use of Outer Space, including the Moon and Other Celestial Bodies.* The title provides the initial view of the document, as is clear in this case, the OST is a *treaty* - a legal document binding to the signature states which completed the ratification process. The OST concerns the *principles*, fundamentals which are not covering any possible variations or details and fulfill rather the guiding role. *Governing the activities of states* is the main subject, addressing the states in a wider sense. The Treaty, therefore, deals with two main interests - *exploration and use of outer space*, where the outer space defines the playing field, although the attribution of the outer space does not have to be direct. Certain aspects of outer spaces are regulated, however relative to human activities. The Moon and other celestial bodies "*is a 'standing phrase' of space law. It is often repeated, and it says two things: that the legislators understand the term 'outer space' not naturally as 'the void space plus the celestial bodies (plus gas, dust, and other forms of matter)' but that they want to also cover both the void and the matter within*.[58] The Treaty and its scope are limited by the human activity possibilities in outer space.

It is worth noting, that the OST does not provide legal definitions of terms used in its text, the specific examples please find below. This practice is quite unusual within the legislative document on the international levels, which often offers the catalogue of definition at the outset. It might have been the reason why the text was widely accepted, leaving some questions aside.

[58] Brünner, Soucek, *Outer Space in Society, Politics and Law* p. 306.

3.2.2 Preamble

The preamble on an international treaty provides an introduction and a political statement. Within its texts is sets the treaty's background and intentions of the parties. The preamble of the OST promotes the endeavor of binding states together and strengthening international cooperation.[59] It is noteworthy, that particularly at the time of creating the OST the friendly relations were worth of focus and emphasis.[60]

After the Preamble follows the text of the Articles I - XVII, most of them were outlined in the General Assembly Resolution - UNGA Res. 1962 (XVIII) of 1963 - concerning the Declaration of Legal Principles Governing the Activities of States in the Exploration.[61]

3.2.3 Article I

Article I attributes to state parties the right to freely explore and use outer space, and the freedom to carry out scientific investigation.[62] The introducing provision of Article I establishes the so-called "*common interest*" general principle.[63] The statement had brought expectations among developing countries, who do consider the phrase "*for the benefit and in the interests of all countries, irrespective of their degree of economic or scientific development*" as a legal obligation of space powers to share benefits of their activities.[64] This provision provides the philosophy, due to which all Countries shall benefit

[59] Ibid, p. 307.

[60] Ibid, p. 307.

[61] Lyall, Larsen, *Space Law A Treatise,* p. 59.

[62] Tronchetti, *Fundamentals of Space Law and Policy*, p. 8.

[63] JAKHU, R., VASILOGEORGI, I. M., "*The Fundamental Principles of Space Law and the Relevance of International Law*" in Stephan Hobe and Steven Freeland (Eds.), "In Heaven as on Earth? The Interaction of Public International Law on the Legal Regulation of Outer Space," Institute of Air and Space Law, Cologne University, Cologne, Germany, (2013), p. 21.

[64] Brünner, Soucek, *Outer Space in Society, Politics and Law,* p. 694.

from the exploration and use of outer space, regardless of their degree of development.[65] The origin of the phrase was in a Soviet draft as a preamble, its inclusion in Article I was made on the proposal of Brazil and socialist and developing countries as Egypt, Hungary and Czechoslovakia.[66] The academic debate is held on the topic of a legal obligation, which is not stipulated by scholars, although the state practice points to a general obligation to cooperate when carrying out space activities.[67] On the other hand, US Department of State rejected the legal obligation in terms of international cooperation on space projects.[68] This view was shared with the Soviet Union.[69] Authors Bourbonnière and Lee find the interpretation issue of the stated phrase with regard to the military activities, which are usually directed by one state against interests of others.[70]

Paragraph 2 grants freedom of exploration and use to all states, without discrimination of any kind, on a basis of equality of states and in accordance with international law. This principle is expounded in more explicit terms in Article III with a notion of UN Charter and its role when achieving the goal of maintaining international peace and security. Paragraph 3 shields the access to all areas of celestial bodies for scientific research purposes.

The term '*including the Moon and other celestial bodies*' and the evident separation of a Moon from other celestial bodies may be explained as follows, despite the Moon also being a celestial body, it was mentioned separately because it is nearest the Earth, and it was the first objective of space flights and also the preparation for such flights were already underway when the Treaty was drafted.

[65] Tronchetti, *Fundamentals of Space Law and Policy*, p. 8.

[66] Ibid.

[67] Ibid, 695.

[68] Ibid.

[69] Ibid.

[70] Ibid, p. 696.

3.2.4 Article II

The Article II embodies a fundamental principle of space law, that "*[o]uter space, including the Moon and other celestial bodies, is not subject to national appropriation by claim of sovereignty, by means of use or occupation, or by any other means*"[71]. In other words, it is forbidden for states to exercise their sovereignty in relation to space, Moon and celestial bodies.[72] This ban clearly constitutes an absolute legal barrier[73] and is followed in the conduct of all activities in outer space.[74] The establishment of the *non-appropriation principle* is an example of the desire of states engaged in the Cold War when the superpowers aimed to set a precise legal framework with a goal to block activities of the other.[75]

It is not a coincidence, that the Article with this wording follows immediately Article I, which elaborates on terms like "common interest" and "freedom" and undertaking the exploration and use of outer space "*for the benefit and in the interests of all countries*". These important concepts were to be reinforced by confirming that principles of territorial sovereignty are not applicable in outer space, which should have protected the outer space from possible conflict based on territorial ambitions.[76]

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[71] Article II, Outer Space Treaty.

[72] ONDŘEJ, J., "*Výkon jurisdikce nad objekty a osobami v kosmu, zejména nad mezinárodní kosmickou stanicí*", Právník 5/2012, p. 471. (hereinafter "Ondřej, *Výkon jurisdikce nad objekty a osobami v kosmu")*

[73] BITTLINGER, H., "*Keep-out Zones and the Non-Appropriation Principle of International Space Law*", Proceedings 31st Colloquium (Bangalore, 1988), pp. 6-12, at p. 7.

[74] FREELAND, S., "*Peaceful Purposes? Governing the Military Uses of Outer Space*" Western Sydney University School of Law, Research Paper No. 03/2017 (2017), p. 41.

[75] Kerrest, *Outer Space as International Space: Lessons from Antarctica* p. 136.

[76] FREELAND, S., "*Peaceful Purposes? Governing the Military Uses of Outer Space*" Western Sydney University School of Law, Research Paper No. 03/2017 (2017), p. 42.

The principle set in the Article II is indisputable, clear and far-reaching. It applies to the bodies and also to the orbits called the 'void space'.[77] However, it cannot be forgotten, that there are space objects and there is possible existence of space stations on the celestial bodies in the future and occurrence of various persons in the environment.[78] The question arises as to who will exercise the authority over these objects and persons and determine what their rights and obligations are. This issue shall be regulated in order for states to be able to fulfill their obligations under international law.[79]

National Appropriation

The discussed issue connected to the term of national appropriation mentioned in the Article II is whether it does apply also to private and/or non-governmental entities. The arguments are following limitation of such a phrase. This belief stems from a misunderstanding of the word "national" which does not match the term "state". In fact, the definition covers both the government and the people having the nationality of a state in American English. It is worth mentioning, that the English text have influenced French and Spanish version of the text, which is similar to the original, meanwhile the Chinese text provides a different meaning of the Article as follows: "*outer space, including the Moon and other celestial bodies, cannot, through the State by asserting sovereignty, use, occupation or any other means, be appropriated.*"[80] This wording suggests prohibition appropriation exclusively by the State. Article XVII puts Chinese,

[77] The expression was used by one of the finest space law lawyers, Bin Cheng, when he wanted to make a clearer distinction from the difference between the 1963 phrase "outer space and celestial bodies" and the 1967 phrase "outer space, including the moon and other celestial bodies." Bin Cheng, Studies in International Space Law (Oxford: Clarendon Press, 1997), p. 517, note 13.

[78] Ondřej, *Výkon jurisdikce nad objekty a osobami v kosmu,* p. 471.

[79] Ibid.

[80] LEE, R. J., "*Article II of the Outer Space Treaty: Prohibition of State Sovereignty, Private Property Rights, or Both*?" Australian Journal of International Law: 11 Aust. I.L.J. p. 130 (2004). (hereinafter "Lee*, Article II of the Outer Space Treaty*"), translation of the author from Chinese original.

English, French, Russian and Spanish texts of the Treaty on an equal footing and therefore the Chinese wording shall be relevant in determining the content and effect of Article II.

Article VI of the OST expressly includes the governmental and nongovernmental entities under the term "national activities"[81] and it requires the supervision of a State of space activities of private entities[82], thus act of national appropriation by a private entity would directly fall under the State's responsibility and contravene Article II.[83]

Historically, the private entities being excluded in the wording has a fairly clear reason. While the OST was being negotiated, States were the only subjects actually participating on the space activities, and involvement or initiatives of private operators were not on a table for many years to come and the drafters did not foresee the leading role of private entities concerning some space activities and its crucial role at present.

Luxembourg is the first European country to set out a legal framework ensuring the rights to the resources extracted in space of private operators. The law on the exploration and use of space resources entered into force on 2 August 2017. It is dealing with two main components - ownership of space resources and authorization regime for the exploration and use of such resources, similar to provisions in the Commercial Space Launch Competitiveness Act, which became law in the United States in November 2015. Article 1 of the law provides that space resources are capable of being appropriated. This approach proves its accordance with international law regarding the Article II, which does not address status of space resources. The Article 1 of the law is dedicated only to the resources, it does not address asteroids or celestial bodies and "*the draft law does not either propose to establish or imply in any way*

[81] HOBE, S. and col., *Cologne Commentary on space law: Outer space treaty*, Heymanns Verlag GmbH, p. 52. (hereinafter „Hobe S., *Cologne Commentary on space law: Outer space treaty")*

[82] Art VI, Outer Space Treaty.

[83] Lee*, Article II of the Outer Space Treaty*, p. 129.

whatsoever the beginning of a commencement of a component of sovereignty over a territory over a celestial body or any part whatsoever of outer space and the other celestial bodies"[84]

In connection with Article I of the OST, paragraph 2 stating the principle of freedom of exploration and use of outer space, scholars have been debating the question whether the non-appropriation principle applies to resources.[85] F. Tronchetti introduces two opposing positions of scholars, i) scholars including the resources under Article II, given absence of distinction in the Treaty between outer space and its natural resources and ii) scholars promoting the non-appropriation as reference only to outer space as a whole and not to its natural resources.[86]

Jurisdiction over Persons and Objects in Outer Space

The basis for the determination of jurisdiction over objects in space is in accordance with Article VIII of the OST, the law of the State in whose register the space object is registered. Therefore, the jurisdiction of a given object is determined similarly to ships on the high seas, although the OST, unlike the United Nations Convention on the Law of the Sea of 1982, does not refer to the exclusive jurisdiction of the State of registration over its object in space. Nevertheless, the text of Article VIII supports an interpretation that it does refer to the exclusive jurisdiction given its wording, mentioning "*A State Party to the Treaty on whose registry an object launched into outer space is carried shall retain jurisdiction and control over such object, and over any personnel thereof, while in outer space or on a celestial body*."

Two different views are held by the M. Lachs and the J. A. Csabafi. Manfred Lachs states that persons on the celestial bodies remain under the jurisdiction of the State in whose space object they arrive, even in the situation when they enter a facility

[84] Draft law on the exploration and use of space resources. *LA GOUVERNEMENT DU GRAND-DUCHÉ DE LUXEMBOURG*. [online]. 2017 [cit 2017-11-28].

[85] von der Dunk, Tronchetti, *Handbook of Space Law,* p. 790.

[86] Ibid.

or station of another State.[87] This interpretation offers to interfere the jurisdiction of one state with another state on its space object. An exclusive personal jurisdiction is presented in the Antarctic Treaty, where it applies if the specified conditions are met exclusively to some people, divided into three groups - observers, scientific staff and accompanying staff. The OST does not associate astronauts with any specific function.[88]

The opposing view presented by J. A. Csabafi does not allow the jurisdiction of a foreign State on another State's space object. According to him, the physical presence of foreign cosmonauts in a space station is a sufficient reason for exercising jurisdiction over such persons.[89]

Commercial Activities in Outer Space

The principle of non-appropriation contributes over the years to the safe development of space activities, although several legal proposals[90] undermine its relevance in the 21st century in order to promote commercial use of outer space and call for its amendment or abolishment. These proposals aim at the valuable resources on the Moon and other celestial bodies and promote the idea of current space law regime restraining the economic activity and commercialization.[91]

It is possible to divide these suggestions into two groups, first focuses on the radical changes and amendments of the current space law regime and the second, which aims at creation of a regime for the utilization of space resources

[87] LACHS, M., *The Law of Outer Space: An Experience in Contemporary Law-making,* Martinus Nijhoff Publishers, 2010, p. 71.

[88] Ondřej, *Výkon jurisdikce nad objekty a osobami v kosmu,* p. 146.

[89] CSABAFI, J., A., *The Concept of State Jurisdiction in International Space Law*. Springer Netherlands, 1971, p. 113.

[90] BACA, K. A., "*Property Rights in Outer Space"*, 58 J. Air L. & Com. 1041 (1993).

[91] Lee*, Article II of the Outer Space Treaty,* pp. 129 – 130.

in accordance with already set space law principles through using as a model the legal instruments governing the exploitation of certain resources on Earth.[92]

First group requests removal (or ignorance) of the non-appropriation principle securing the interests of the private entities and its exploitative activities in space.[93] This aim shall not be acceptable, specifically because of the emergence of space commerce and activities would lead to the space race and a high chance of an armed dispute between competing parties on Earth. Moreover, given the appropriation possibilities of States and non-governmental entities, the politics of space activities would become profit oriented and the principle established in Article I of the OST would lose its relevance.[94] The second group of proposals is also quite unrealistic due to the solution, which actually suggests the practical appropriation of outer space through conferring property rights in this area, coming across the "*national appropriation by other means*"[95].[96]

3.2.5 Article III

Article III includes an obligation to act in accordance with international law including the Charter of the United Nations giving an emphasis on maintaining international peace. According to the wording, sources of rules of international

[92] Ibid, pp. 136 – 137.

[93] TRONCHETTI, F., "*The Non-Appropriation Principle as a Structural Norm of International Law: A New Way of Interpreting Article II of the Outer Space Treaty*", Air & Space Law, Vol. XXXIII/3 (2008), p. 286, refers to for instance 'Property Rights in Outer Space', 59 J. Air L. & Com. 1041 (1993); Reynolds, 'International Space Law: Into the Twenty-First Century', Husby, 'Sovereignty and property rights in outer space', 3 Det. C.L.J. Int'L. L. & Prac. 359, (1994), Cunningham, 'Space commerce and secured financing– new frontiers for the UCC', 20 Bus. Law 803, (1985);

[94] Lee*, Article II of the Outer Space Treaty,* pp. 137 – 138.

[95] Article II, Outer Space Treaty.

[96] TRONCHETTI, F., "*The Non-Appropriation Principle as a Structural Norm of International Law: A New Way of Interpreting Article II of the Outer Space Treaty*", Air & Space Law, Vol. XXXIII/3 (2008), p. 14.

space law are the typical ones listed in Article 38 paragraph 1 of the Statute of the International Court of Justice[97].

It implies that space law is extensively linked with international law and its other branches and from the viewpoint of international law, the Article III is one of the most fundamental provisions of the OST.[98] For instance, rules of international environmental law focusing on sustainable development might significantly contribute to the protection of the space environment.[99]

Relationship of Space Law to International Law

The activities in outer space have developed during last years and decades considering its changes and diversification. Currently, space is accessible for commercial and private activities and due to its link to technology the field expands continually. The possibilities are constantly expanding, which requires legal regulation also in related fields. The expansion and constant adjustment result in a certain importance and specialization, on the basis of which the space law has outgrown the limits of the international law. Considering the continuous development of this field and its increasing importance, there is no binding document, which defines the scope of the space law.

The background question is, whether the space law is a self-contained regime. Opinions on international law divide at the point of its unity or fragmentation. One part of scholars promotes the thought of unity of international law and the other focuses on its fragmentation, given the emergence of new special legal systems

[97] Statute of The International Court of Justice. *ICJ*. [online]. 2012 [cit 2017-11-29].

[98] JAKHU, R. FREELAND, S., "*The sources of international space law, in Proceedings of the International Institute of Space Law*", 56th IISL Colloquium on the Law of Outer Space, Beijing, China, p. 460.

[99] BRECCIA, P., "*Article III of Outer Space Treaty and Its Relevance in the International Space Legal Framework*", 67th International Astronautical Congress (IAC), International Astronautical Federation (2016), p. 4.

marked by new rules and specific mechanisms, which differ from the general international law.

The topic is highly discussed by scholars, for instance, M. Koskenniemi came to the conclusion, that no regime might be fully self-contained, because of an existence of general legal background created by international law, which stands as a rescue version in case of failure of a special regime.[100] International law provides interpretative help and fills existing gaps in the space law. Individual branches of international law communicate and interact, space law does fall under this theory and benefits from it. Therefore space law should not be considered as a self-contained regime.[101]

3.2.6 Article IV

Article IV provides the first principles of international law explicitly related to military activities in space.[102] Its paragraph 1 states, that "*States Parties to the Treaty undertake not to place in orbit around the earth any objects carrying nuclear weapons or any other kinds of weapons of mass destruction, install such weapons on celestial bodies, or station such weapons in outer space in any other manner*"[103].

At time, when the OST was drafted, the nuclear weapons and nuclear was the only foreseeable threat to outer space community,[104] therefore,

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[100] BRECCIA, P., "*Article III of Outer Space Treaty and Its Relevance in the International Space Legal Framework*", 67th International Astronautical Congress (IAC), International Astronautical Federation (2016), p. 4.

[101] Ibid.

[102] PETRAS, C. M., "*Military use of the International Space Station and the concept of 'peaceful purposes'*" The Free Library. 2002 U.S. Air Force Academy, Department of Law (2017). (hereinafter "Petras, *Military use of the International Space Station*")

[103] Article IV, Outer Space Treaty.

[104] TAFT, E., "*Outer Space: The Final Frontier or the New Battlefield*?" DUKE LAW & TECHNOLOGY Review, Vol. 15, No.1, p. 376. (hereinafter "Taft, *Outer Space: The Final Frontier or the New Battlefield*?")

the Article IV does not fully prohibit all kinds of weapons[105] and implicitly permits the presence of other types of weapons[106]. Thus, the provision does not restrict completely the placement of weapons in outer space, neither use of such weapons. The proposals to amend the Article IV have been presented in order to enhance these restrictions, although any of these suggestions were not successful.[107]

It is worth noting, that paragraph 1 refers only to "celestial bodies" and "outer space" absenting "the Moon", which at the first glance exclude the Moon from its application.[108] However, according to the scholars and the Dictionary of Astronomy and Astronautics, given the terminology of the OST the term "celestial bodies" is meant to include also the Moon.[109] The same reference appears in the Article IV paragraph 2, second sentence.

Paragraph 2 provides, that "*The Moon and other celestial bodies shall be used by all States Parties to the Treaty exclusively for peaceful purposes. The establishment of military bases, installations and fortifications, the testing of any type of weapons and the conduct of military manoeuvres on celestial bodies shall be forbidden. The use of military personnel for scientific research or for any other peaceful purposes shall not be prohibited. The use of any equipment or facility necessary for peaceful exploration of the Moon and other celestial bodies shall also not be prohibited*."[110]

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[105] LING, Y. "*Prevention of Outer Space Weaponization under International Law: A Chinese Lawyer 's Perspective*" Journal of East Asia & International Law, IV JEAIL 2, p. 280 (2011).

[106] Petras, *Military use of the International Space Station.*

[107] FREELAND, S., "*Peaceful Purposes? Governing the Military Uses of Outer Space*" Western Sydney University School of Law, Research Paper No. 03/2017 (2017), p. 44.

[108] Petras, *Military use of the International Space Station*

[109] OGUNBANWO, O. O., *International Law and Outer Space Activities, Springer Netherlands,* 1975, p. 60.

Hobe S., *Cologne Commentary on space law: Outer space treaty,* p. 317.

[110] Article IV, Outer Space Treaty.

The international law contains a leading principle of disarmament which is projected the OST as the principle of peaceful use of outer space presented in Article IV. The mentioned term "peaceful purposes" faces varying interpretations followed by extensive discussions.

The Paragraph 2 of Article IV establishes the principle of the Moon and other celestial bodies being used exclusively for peaceful purposes. At this point, an exclusion emerges with the omission of "outer space". This exclusion was arguably intentional, with an objective to allow states to carry out certain space activities for military purposes, for instance the use of reconnaissance satellites.[111] This view is supported by the historical background, because at the time the United States and the Soviet Union had already launcher military satellites into space for military purposes.[112]

Outer space is of a significant strategic and military importance to states, even if there is no military purpose of some activities, many of them serve a direct or indirect military interest[113], especially in view of the dual purpose technologies.[114]

The international system was unable to ensure adequate legal regime to address a weaponization issue, the United Nations made attempts to find a solution, although United States has not signed any such agreement. As a result, the only legally binding document specifically addressing this issues is the OST.[115]

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[111] Hobe S., *Cologne Commentary on space law: Outer space treaty,* p. 317.

[112] Ibid.

[113] Ferreira-Snyman, *Selected Legal Challenges Relating to the Military Use of Outer Space,* p. 495.

[114] Tronchetti, F., "A Soft Law Approach to Prevent the Weaponization of Outer Space", in Marboe I. (ed.), Soft law in Outer Space – The Function of Non-Binding Norms in International Space Law, Böhlau Verlag, (2012), p. 365. (hereinafter "Tronchetti, *A Soft Law Approach*") points out that the number of states using dual-use satellites is increasing.

[115] QUINN, J., "*The New Age of Space Law: The Outer Space Treaty and the Weaponization of Space*", 17 Minn. J. INT'L L. 475, (2008).

Delimitation of Outer Space

The borders of the space are quite useful to have outlined due to the issues with military activities because some military activities may be permitted on Earth but may not in space. The space law reaches as far as human activity is practically possible or feasible[116], thus even if the terms of outer space determine the whole universe, within the inclusion of the fact of limited options, it is a very narrow part of outer space.

Essentially, the topic of delimitation includes the question of where airspace does end and the outer space begins. This question is significant in order to separate these two fields. The activities under air space fall under the territorial sovereignty of the underlying state in contrast to the international space law, where is determined that outer space is not subject to the sovereignty of any particular state.[117] The international definition of term *outer space* does not exist.[118] The first attempt to formally define this term is was made in Draft Treaty on the Prevention of the Placement of Weapons in Outer Space and of the Threat or Use of Force Against Outer Space Objects, presented in 2008[119], where Article 1(a) stated that outer space is "*space beyond the elevation of approximately 100km above ocean level of the Earth*". This definition and its wording lacked decisive indication of the borderline given the *approximate* phrase[120] and therefore

[116] FERREIRA-SNYMAN, A. "*Selected Legal Challenges Relating to the Military Use of Outer Space, with Specific Reference to Article IV of the Outer Space Treaty*", PER/PELJ 2014, Vol. 18, Art 3 (2014), p. 493 (hereinafter "Ferreira-Snyman, *Selected Legal Challenges Relating to the Military Use of Outer Space*").

[117] Ibid.

[118] Ibid, p. 493.

[119] Draft Treaty on the Prevention of the Placement of Weapons in Outer Space and of the Threat or Use of Force Against Outer Space Objects (2008) available at Reaching Critical Will 2014 http://reachingcriticalwill.org/resources/fact-sheets/critical-issues/5448-outer-space.

[120] Ferreira-Snyman, *Selected Legal Challenges Relating to the Military Use of Outer Space*, p. 493.

it was removed from the second draft of the Treaty[121] in order „*to be addressed, if necessary, in the future*"[122].

The interesting fact is, that some commentators find this need unnecessary due to a self-evident difference in order to avoid uncertainties and conflict. Other two groups may be introduced as *spatialists* who insist on the logical delimitation of the end of national airspace and the beginning of outer space and *functionalists* who refuse this idea and promote the lawfulness on basis of nature of an activity or a vehicle.[123]

The discussions on definition and delineation of outer space has been a matter of discussion within COPUOS for many years.[124] The World Health Organization Secretariat requested the statement of an altitude, which would help the states to develop appropriate legislation related to public safety and suborbital flights and the World Meteorological Organization suggests the definition of space as "*the unlimited part of the universe including the upper atmosphere and extending above the atmosphere*."[125] For instance, Austria sees a distinction with regard to the applicable law by distinguishing between astronautical and aeronautical activities; "*Aeronautical activities should be regulated by air law and space*

[121] The second draft of the Treaty was recently submitted by Russia and China to the Conference on Disarmament in June 2014. See Draft Treaty on the Prevention of the Placement of Weapons in Outer Space and of the Threat or Use of Force against Outer Space Objects (2014) available at Reaching Critical Will 2014 http://reachingcriticalwill.org/resources/fact-sheets/critical-issues/5448-outer-space.

[122] See the Explanatory Note on the updated Draft Treaty on the Prevention of the Placement of Weapons in Outer Spaceand of the Threat or Use of Force against Outer Space Objects available at Reaching Critical Will 2014 at http://reachingcriticalwill.org/resources/fact-sheets/critical-issues/5448-outer-space.

[123] Diederiks-Verschoor Introduction to Space Law 15. Cheng 1995 Air and Space Law 298

[124] Definition and delimitation of outer space: views of States members and permanent observers of the Committee. *COPUOS* [online]. 2017 [cit 2017-11-28].

[125] Ibid.

activities by space law."[126] The discussion recognizes a growing number of national regulations on this topic, nevertheless, given the legal importance, the multilateral solution shall be preferred.[127] The position currently supported promotes to delimitate the frontier between airspace and outer space at 100 km above mean sea level through international instrument with the provision of special regime applicable to the launching and re-entry of space objects.[128]

Exclusively for Peaceful Purposes

One of the most important principles is set in the Article IV, paragraph 2, the use of the Moon and other celestial bodies "*exclusively for peaceful purposes*". After the codification this principle does not have a specific definition, thus it became controversial and faced various interpretations, of which arguments still remain till today. Nevertheless, it is indisputable that promotion of peace is a fundamental goal of the Treaty, as it is mentioned in a number of provisions of the OST.[129]

The scholars, not completely unanimously, agree on that the term *exclusively for peaceful purposes* aims rather at the "non-military" activities than at the activities of "non-aggressive" character.[130] However, the tendency among states within other activities of various character in outer space is to approach the outer space as a field of possible military activities,

[126] Definition and delimitation of outer space: views of States members and permanent observers of the Committee. Note by Secretariat. *COPUOS* [online]. 2017 [cit 2017-11-28].

[127]Promoting the discussion of the matters relating to the definition and delimitation of outer space with a view to elaborating a common position of States members of the Committee on the Peaceful Uses of Outer Space. *COPUOS* [online]. 2017 [cit 2017-11-28].

[128] Ibid.

[129] Definition and delimitation of outer space: views of States members and permanent observers of the Committee. *COPUOS* [online]. 2017 [cit 2017-11-28].

[130] Hobe S., *Cologne Commentary on space law: Outer space treaty,* p. 318.

in other words, the interpretation of non-military means is not reflected in the states' practice.[131]

United States consistently address the peaceful means as the non-aggressive activities and the permission of the military activities necessary for self-defense and non-aggressive military activities to protect its space assets.[132] It is worth noting that Lyall and Larsen present, that this interpretation is in accordance with the distinction drawn by the UN Charter between the Chapter VI - pacific settlement of disputes and actions under Chapter VII in the occurrence of threats to the peace, breaches of the peace, or acts of aggression.[133]

Nevertheless, the non-aggressive explanation would, in contrast to the non-military term, play the key role rather behavioral aspects than technological. Then it would be possible for states to continue the passive military approach and to actually place weapons in space as means of deterrence and self-defense, but they should not use those weapons or threaten to use force from outer space.[134]

Militarization of Space

The OST deals with the principle of non-militarization of outer space inconclusively.[135] The Article IV, paragraph 2 is dedicated to the Moon and celestial bodies and the use for exclusively peaceful purposes, and the only general limitation of militarization in outer space is to be found in Article IV, paragraph 1, prohibiting the emplacement in orbit of "*objects carrying nuclear weapons or any other kinds of weapons of mass destruction*"[136].

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[131] BOURBONNIÈRE, M., LEE, R., "*Legality of the Deployment of Conventional Weapons in Earth Orbit: Balancing Space Law and the Law of Armed Conflict*", EJIL Vol. 18 no. 5, p. 877.

[132] Lyall, Larsen, *Space Law A Treatise,* p. 524

[133] Ibid.

[134] Taft, *Outer Space: The Final Frontier or the New Battlefield*?, p. 377.

[135] ARBESS, D., "*Star Wars and Outer Space Law*", Bulletin of the Atomic Scientists, Taylor & Francis, October 1985, p. 19 – 21 (1985).

[136] Article IV, Outer Space Treaty.

It is worth noting, the Article IV differs from the Antarctic Treaty, which in its first article prohibits "*any measure of a military nature"*.[137]

Weaponization of Space

At present, the focus must be oriented on the active military use of space – weaponization of space. The weaponization definition is "*the deployment of weapons of an offensive nature in outer space or on the ground with their intended target located in space."*[138] The majority of states is of an opinion that these activities are illegal because they are not in accordance with basic principles of international and outer space law.[139] Currently, space is militarized to a certain extent considering the satellite capabilities in space, although no weapons are placed in orbit.[140] However, for instance, the Anti-Satellite ("ASAT") program of China, its performed tests and potential cyber-attacks, which might be a real threat to any vulnerable space system,[141] especially when many military functions are being performed using the commercial satellites[142], show the weaponization as a real possibility. Moreover, the threat to security and free exploration of space constitutes also the side effect – the generated space debris due to testing of space weapons.[143]

Apart from this, the new trend of non-state actors also raises the uncertainty and thus a threat to space security. As T. W. Goodman cautions, the possibility of space terrorism (especially target such as state's satellites) given its far-reaching

[137] Article I, Antarctic Treaty.

[138] Ibid, p. 499.

[139] Tronchetti, *A Soft Law Approach,* p. 365.

[140] Ferreira-Snyman, *Selected Legal Challenges Relating to the Military Use of Outer Space*, p. 500.

[141] Ibid, p. 501.

[142] Taft, *Outer Space: The Final Frontier or the New Battlefield*?, p. 370.

[143] Tronchetti, *A Soft Law Approach*, p. 362.

impact should not be overlooked and therefore the control of private space actors may eventually play an utmost important role in ensuring space security.[144]

Space Weapon

The definition of the term "space weapon" is not included in any of space treaties, nor in any national legislation.[145] The narrower concept includes "*space systems whose specific goal it is to destroy and damage an object in space*"[146]. The broader definition offers F. Tronchetti as follows; "*Any device, whether in space or on Earth, created or modified to cause permanent or temporary physical or operational damage to an object in outer space by means of physical contact, projection of energy, or any kind of voluntary interference*."[147] The tricky part, that F. Tronchetti mentions, is that most of the space objects and tools do have a civilian and military purpose, therefore all of these might potentially become a space weapon,[148] hence the broad definition includes space and Earth-based systems and a possibility of the destruction or temporary inoperability of a space object as a result of an attack. However, it is not clear whether it approaches devices with a specific purpose of a weapon or space objects of different use potential to cause damage.[149]

A question involving weapons in space is linked to the wording of Article IV, which deals exclusively with the placement of nuclear weapons and weapons of mass destruction in orbit around the Earth or on celestial bodies.[150] Conventional weapons or other military systems are not mentioned, so it is not clear, whether

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[144] Ferreira-Snyman, *Selected Legal Challenges Relating to the Military Use of Outer Space*, p. 502.

[145] Ibid, 510.

[146] Tronchetti, *A Soft Law Approach*, 364.

[147] Ibid.

[148] Ibid.

[149] Ferreira-Snyman, *Selected Legal Challenges Relating to the Military Use of Outer Space*, p. 511.

[150] Lyall, Larsen, *Space Law A Treatise,* pp. 513-514.

the use of those is implicitly permitted given its lack of an explicit prohibition.[151] According to the explicit wording covering the nuclear weapons and weapons of mass destruction, the majority of the international community accepts inclusion the military support systems and its incompatibility with the OST.[152] Due to M. Bourbonnière and R. J. Lee, the deployment of conventional weapons for peace-keeping purposes under articles VI and VII of the UN Charter will be acceptable under Article IV of the OST.[153]

It is important to realize, that an update of the range of prohibited weapons does not sufficiently solve the problem of weaponization of outer space. Primarily, it is not a solution to preclude tests of those weapons in outer space and continuous development of such weapons. The complete solution must concern testing of any kind of space weapons, their development, deployment and storage.[154]

The Article IV does not adequately deal with the current issues relating to the military use of outer space. The current legal regime established under the OST cannot deal with the weaponization issues in space, which due to some scholars will possibly arise in the very near future.[155] Moreover, the uncertainty might be strengthened by the lack of coordination in relation to arms control initiatives. The United Nations address this issue within the Conference on Disarmament or within the Group of Government Experts on Transparency and Confidence Building Measures in Outer Space Activities, European Union

[151] Ferreira-Snyman, *Selected Legal Challenges Relating to the Military Use of Outer Space*, p. 512.

[152] Ibid, p. 513.

[153] BOURBONNIÈRE, M., LEE, R., "*Legality of the Deployment of Conventional Weapons in Earth Orbit: Balancing Space Law and the Law of Armed C*onflict", EJIL Vol. 18 no. 5, p. 888.

[154] LING, Y. "*Prevention of Outer Space Weaponization under International Law: A Chinese Lawyer's Perspective*" Journal of East Asia & International Law, IV JEAIL 2, p. 281 (2011).

[155] CHANOCK, A., "*The Problems and Potential Solutions Related to the Emergence of Space Weapons in the 21st Century*", 78 J. Air L. & Com. (2013), p. 696.

drafted the *Code of Conduct for Outer Space Activities*[156] and the most recent attempt was the *Draft Treaty on the Prevention of the Placement of Weapons in Outer Space and of the Threat or Use of Force against Outer Space Objects* submitted to the Conference on Disarmament in 2008 and 2014 by Russia and China.

3.2.7 Article V

Article V focuses on the assistance to astronauts, to which it grants the status of "*envoys of mankind*"[157] and contents the obligation to inform states and the United Nations Secretary-General of any occurrence which may constitute a danger to the life or health of an astronaut. The status of astronauts is not mainly noting the formal diplomatic status of such persons, but it shall indicate a representative role of astronauts in the dangerous outer space environment, therefore persons entitled to a special attention in distress situations beyond normal consideration.[158]

The definition and description of "an astronaut" are missing.[159] In recent years the degree of difference in terms "personnel of a spacecraft" and "astronauts" is gaining importance, because of a position of, for instance, space tourists, which may not be entitled to the epithet "envoys of mankind".[160]

[156] The fifth revised Draft International Code of Conduct for Outer Space Activities (2014) was made public by the EU on 31 March 2014. Available at < https://eeas.europa.eu/headquarters/headquarters-homepage_en/14715/EU%20proposal%20for%20an%20international%20Space%20Code%20of%20Conduct,%20Draft>.

[157] Article V, Outer Space Treaty.

[158] Hobe S., *Cologne Commentary on space law: Outer space treaty*, p. 98.

[159] von der Dunk, Tronchetti, *Handbook of Space Law,* p. 80.

[160] Ibid.

This article has been elaborated in the Agreement on the Rescue of Astronauts, the Return of Astronauts and the Return of Objects Launched into Outer Space (1968).

3.2.8 Article VI

Article VI is dealing with the principle of international responsibility of states. "*States Parties to the Treaty shall bear international responsibility for national activities in outer space, including the Moon and other celestial bodies*"[161] setting no difference between activities carried on by governmental agencies or by non-governmental entities, the principle includes the personal jurisdiction over the private entities, which is the only case in international law.[162] The concept of responsibility of a state under international law generally refers to the acts, which are directly attributable to the state.[163] In contrast, under Article VI of the OST a state is responsible for all space activities carried out by private entities falling under its jurisdiction. Moreover, states must ensure that space activities of private nature are conducted in compliance also with other obligations presented in the OST.[164]

This principle in the certain wording has appeared firstly in the Declaration of Legal Principles (1963) as a result of a compromise between USSR and the United States. In the proposal of the Declaration, USSR wished to block private sector from the outer space completely leaving, this prerogative only to states. Even there was no private activity at the time, the United States refused such a limitation, because of their already prepared plans for privately-operated telecommunications satellites.[165] This two states within negotiations have opened the access for the private sector to develop space activities under the condition of a strict

[161] Article VI, Outer Space Treaty.

[162] Kerrest, *Outer Space as International Space: Lessons from Antarctica* p. 134.

[163] Tronchetti, *Fundamentals of Space Law and Policy*, p. 27.

[164] Ibid.

[165] Brünner, Soucek, *Outer Space in Society, Politics and Law* p. 441.

control of a state[166], which is then responsible for their adherence to international law.[167]

Launching State

Liability convention provides a definition of the term "launching state" as *"(i) A State which launches or procures the launching of a space object; (ii) A State from whose territory or facility a space object is launched"*[168].[169] The status of launching state cannot be changed from a state to another state, there are no provisions in UN treaties allowing the change of the status of the launching state. The issue arises within commercial activities in space, when space objects, mostly satellites are being sold and bought among private actors in orbit on daily basis, which was not presumed at the time of creation of the OST.

The Enactment of National Space Act

The enactment of a national space act is not demanded by the Article VI[170], however, the State must possess certain legal mechanisms (also expertise and knowledge[171]) to authorize and supervise activities carried out by the entities in the non-governmental sector.[172] Norms of soft law are dealing with the outer space activities, states might have an interest that private actors act in compliance with such norms, which are regarded as recommendations[173], therefore states might

[166] Diederiks-Verschoor, *Introduction to Space Law,* p. 52.

[167] Brünner, Soucek, *Outer Space in Society, Politics and Law* p. 226.

[168] The Liability Convention, Article I.

[169] von der Dunk, Tronchetti, *Handbook of Space Law,* p. 83.

[170] Ibid, 441.

[171] Lyall, Larsen, *Space Law A Treatise,* p. 66.

[172] Brünner, Soucek, *Outer Space in Society, Politics and Law* p. 696.

[173] von der Dunk, Tronchetti, *Handbook of Space Law,* p. 113.

choose to transform them into national legal obligations. The assumption is, that it depends mostly on the state, what activities it decides to regulate and how.[174]

It is worth noting the ambiguity of terms "authorization" and "continuing supervision" without any closer description. Each state has its own processes to authorize something, most of the states solved this issue through a licensing system[175]. The latter term indicates a matter of frequency, whether it should be on daily basis or annual is not specified.[176] Regarding the extent, there are no implications what should be taken into consideration, for instance, new developments or the potential risks.[177] The lack of objective evaluation criteria leads to missing know-how in states, especially in smaller countries active for short period of time.

COPUOS undertakes the efforts to harmonize national legislation. With respect to this initiative, it is necessary to make the harmonization a global effort in order to implement Article VI OST. Information is gathered in the schematic overview on the basis of national legal instruments provided by 28 states.[178]

Besides, it is necessary to amend the state-based responsibility and liability system of UN treaties. There is lack of rules governing second and third party liability. Some scholars promote the possible inspiration from the legal regulations of air law

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[174] MONTGOMERY, L., "*Regulating Space: Innovation, Liberty, and International Obligations*" the Committee on Science, Space, and Technology Subcommittee on Space (2017), p. 2.

[175] MASSON-ZWAAN, T., "*Article VI of the Outer Space Treaty and Private Human Access to Space*", Eilene Galloway Symposium on Critical Issues in Space Law (2008), p. 8. (hereinafter "Masson-Zwaan, *Article VI of the Outer Space Treaty and Private Human Access to Space*")

[176] MONTGOMERY, L., "*Regulating Space: Innovation, Liberty, and International Obligations*" the Committee on Science, Space, and Technology Subcommittee on Space (2017), p. 3.

[177] Masson-Zwaan, *Article VI of the Outer Space Treaty and Private Human Access to Space* p. 8.

[178] Schematic overview of national regulatory frameworks for space activities. Note by Secretariat. *COPUOS* [online]. 2017 [cit 2017-11-28].

under the system of The Warsaw Convention of 1929, The Montreal Convention of 1999 and The Rome Convention on Damage Caused by Aircraft to Third Parties on the Surface and its Montreal Protocol of 1978.[179]

3.2.9 Article VII

Article VII introduces the crucial principle of a state being held liable for damage, which was caused by space objects launched or procured by the state or from the state's territory[180] "*to another State Party to the Treaty or to its natural or juridical persons by such object or its component parts*"[181]. It elaborates on the consequences of the international state responsibility addressed by Article VI, through the concept of international liability for damage.[182] States are liable for damages caused by space objects launched into space, even if their launch and operation fall exclusively under the guidance of a private entity.[183] The liability of states evolved into a principle of customary international law.[184]

The State Party is liable for damage to another State Party, including its natural or juridical persons "*on the Earth, in air space or in outer space, including the Moon and other celestial bodies*"[185]. The liability clause is strict and protective of the victim, and primarily not limited in amount or in time.[186] There are no exceptions for the liable state (gross negligence, force major, a fault

[179] Masson-Zwaan, *Article VI of the Outer Space Treaty and Private Human Access to Space*, p. 10.

[180] von der Dunk, Tronchetti, *Handbook of Space Law,* p.82.

[181] Article VII, Outer Space Treaty.

[182] VON DER DUNK, F. G., "*The Origins of Authorisation: Article VI of the Outer Space Treaty and International Space Law*", Space, Cyber, and Telecommunications Law Program Faculty Publications. 69 (2011), p. 10.

[183] Article VII, Outer Space Treaty
von der Dunk, Tronchetti, *Handbook of Space Law*, p.94.

[184] Brünner, Soucek, *Outer Space in Society, Politics and Law* p. 443.

[185] Article VII, Outer Space Treaty.

[186] Ibid.

of a third person) and the victim may seek the compensation also through national courts, for instance. The general purpose is to convince states to exercise strict and effective control and minimize risks of damage. The concerns relate also to the safety requirements of using technology, which might be achieved most effectively through national legislation.[187]

This Article was elaborated on within the Liability Convention. The Convention describes terms, such as the above-mentioned term "launching State"[188] and the term "damage", which "*means loss of life, personal injury or other impairment of health; or loss of or damage to property of States or of persons, natural or juridical, or property of international intergovernmental organizations*"[189], which are not clarified in the Article VII and further addresses the liability issues.

3.2.10 Article VIII

The principle of retaining control and jurisdiction of a state over its registered object and its personnel is declared in Article VIII. It provides grounds for registration of space objects and moreover establishes a link between registration and the exercise of jurisdiction over the object by the state of registry.[190]

The Registration Convention elaborates on the Article VIII and on precise qualification as a state of registration, also in a situation where more than one state could qualify.[191]

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[187] Ibid.

[188] The Liability Convention, Article I.

[189] Ibid, Article I.

[190] Brünner, Soucek, *Outer Space in Society, Politics and Law* p. 228.

[191] Masson-Zwaan, *Article VI of the Outer Space Treaty and Private Human Access to Space*, p. 13.

3.2.11 Article IX

The first sentence of the Article IX addresses the principle, that governs all outer space activities; conducting all activities of State parties with due regard to the corresponding interests of all other state parties.[192] Protection of space environment is possible to ensure by the cooperation of states. In the exploration and use of outer space, including the Moon and other celestial bodies, States Parties to the Treaty shall be guided by this principle and principle of mutual assistance. Following sentences elaborate upon this principle and set out three positive legal obligations; i) studies and exploration shall be conducted in order to avoid harmful contamination of space, ii) studies and exploration shall be conducted in order to avoid adverse changes in the environment of Earth and iii) international consultations shall be undertaken before launching an experiment that a State has reason to believe could potential harmfully interfere with activities of other States.[193]

Article IX does not distinguish between civilian and military activities. Considering this fact, the requirements apply fully to military activities as well,[194] although the application is subject to the UN Charter and regulations of general international law, including regulations governing armed conflict.[195]

Consultation Clause

Regarding the international consultation, this obligation is relevant under three conditions; firstly, the existence of an activity or experiment in outer space,[196]

[192] Article IX, Outer Space Treaty.

[193] Ibid.

[194] RAMEY, R., "*Armed Conflict on the Final Frontier: The Law of War in Space*", 48 A.F. L. REV. 1, p. 76.

[195] MICHAEL C. MINEIRO, "*FY-1C and USA-193 ASAT Intercepts: An Assessment of Legal Obligations under Article IX of the Outer Space Treaty*", 34 J. Space L. 321, p. 15. (hereinafter "Mineiro, *An Assessment of Legal Obligations under Article IX of the Outer Space Treaty*")

[196] ASAT activity or a test.

secondly the believe that the activity or experiment may cause potentially harmful interference and that this interference must be within activities of other state parties to the OST.[197] The terms "activity" and "experiment" are not defined in the OST, nor the 'harmful interference'. The phrase connected 'reason to believe' indicate a threshold of the burden of proof.[198] Besides, the phrase about the potential cause of harmful interference is unclear, while one cannot predict the results. Although in practice, the Article IX was influenced by the Cold War, while the United States disagreed with the nuclear tests in high atmosphere under control of the USSR and the USSR complained about the U.S. West Ford Experiment, which consisted in placing millions of copper needles in space. At the time "potentially harmful interference" was successfully negotiated.[199]

The idea of international consultations is not described and no agency was designated to be the authoritative body for evaluation of proposed experiments and activities.[200] As a result, the nature of consultations will depend mostly on the nature of the exact experiment.[201] Nevertheless, it may be inferred that state party is obligated to contact other states in case of potentially harmful interference and provide them with sufficient information at minimum.[202]

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[197] Article IX, Outer Space Treaty.

[198] Mineiro, *An Assessment of Legal Obligations under Article IX of the Outer Space Treaty,* p. 17.

[199] Kerrest, *Outer Space as International Space: Lessons from Antarctica*, p. 137.

[200] VLASIC, I., "*The Space Treaty: A Preliminary Evaluation*", 55 CAL. L. REV. 507 (1967).

517. Mineiro, *An Assessment of Legal Obligations under Article IX of the Outer Space Treaty*, p. 19.

[201] Mineiro, *An Assessment of Legal Obligations under Article IX of the Outer Space Treaty,* p. 19.

[202] Mineiro, *An Assessment of Legal Obligations under Article IX of the Outer Space Treaty,* p. 20.

Harmful Contamination Clause

The following is introduced the harmful contamination clause, presented that while pursuing studies of outer space, including the Moon and other celestial bodies, it should be explored "*so as to avoid their harmful contamination*"[203]. The obligation constituted under Article IX in not elaborated further, for instance, on appropriate measures how to avoid the harmful contamination. Until state practice will be more specifically established, states do have a wide spectrum of activities, which might be subdued under avoidance of harmful contamination, the phrase remains open for interpretation of what constitutes the contamination and how "harmful" is defined.

Article IX consequently calls for avoidance of adverse changes in the environment of the Earth and in necessary cases adoption of appropriate measures for this purpose.[204] The chosen verb "avoid" does not prohibit by itself. The Moon Agreement sought to elaborate further on the term of "harmful contamination", although the Agreement did not attract the spacefaring states to ratify it.[205]

The purpose of the Article IX provides an obligation to cooperate, although the idea remains rather theoretical, the consultation and its outcome do not have nature of an obligation.[206] The effectiveness of Article IX depends on its application by states and state practice in case of dispute resolutions. The reaction on violation of this Article will show, if its wording is not just an empty shell. The failure to consult other states prior to conducting activities increases primarily mistrust among States.[207] The Outer Space Treaty lacks a mechanism of dispute resolution.

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[203] Article IX, Outer Space Treaty.

[204] Article IX, Outer Space Treaty.

[205] WILLIAMSON, M., "*A Pragmatic Approach to the "Harmful Contamination" Concept in Art. IX of the Outer Space Treaty*", 5th Eilene M Galloway Symposium on Critical Issues in Space Law, December 2010 Art. IX of the Outer Space Treaty and Peaceful Purposes: Issues and Implementation (2010).

[206] Brünner, Soucek, *Outer Space in Society, Politics and Law* p. 228.

[207] Mineiro, *An Assessment of Legal Obligations under Article IX of the Outer Space Treaty,* p. 37.

According to its text, in case of a dispute states may rely on mechanisms of pacific settlements of disputes presented by UN Charter.[208]

3.2.12 Article X

The adoption of Article X purposed as a guarantee of international cooperation in the use of space and research. Its provisions call on states considering requests to observe the flights of space objects by other states on basis of equality.[209] Conditions and nature of such opportunity shall be determined by an agreement between the states concerned. Although "equal consideration" of an application cannot be regarded as a consideration on reciprocity, because of for instance requests from developing countries[210] not yet active in space matters could not fulfill such a reciprocal task, which would devolve the beneficial role of the Article.

The timeframe or other characteristics (such as rejection) of consideration of a request are not addressed in the provision of the OST. Although in case of a refusal, this act might be seen as unwillingness to cooperate with other states in the exploration of space[211], which is against the principle set in the first sentence of Article IX of the OST.

3.2.13 Article XI

The main purpose of Article XI is a stipulation of an all-embracing obligation about disclosing information regarding states' activities in outer space.[212] In compliance with Article VI of the OST, the obligation is also applicable to non-governmental space activities. Second sentence of the Article commits

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[208] Articles 33-38, *Charter of the United Nations*, signed 26 June 1945, effective 24 October 1945, 1 UNTS XVI.

[209] Diederiks-Verschoor, *Introduction to Space Law,* p. 25.

[210] Hobe S., *Cologne Commentary on space law: Outer space treaty, pp.* 600-603.

[211] Ibid, p. 604.

[212] Ibid, p. 626.

the Secretary-General of the UN to disseminate received information immediately and effectively. The office of the UN Secretary-General uses the internet to publish the information. Besides, there is also the obligation to inform the public, which is being achieved through media. [213]

The wording about the amount of information, which shall be disclosed is "to the greatest extent feasible and practicable". This formulation supposes the sovereign decision of a state, what feasible and practicable is, although it does not mean that states may decide freely whether or not to disclose such information. It is understandable, that states consider not to disseminate certain information, which could touch for instance strategic of commercial interests. One of the major constrains might be the protection of intellectual property rights, for instance, information of a technical nature.[214] Given the phrase in Article XI, first sentence "to the greatest extent*"* states are requested to balance their interests to keep certain information confidential.

Obligations and entitlements under Article XI are not clearly defined due to broad wording, nevertheless, its value shall not recapitulate as a declaration statement. The Registration Convention within its field of application is elaborating on the content of Article XI of the OST.[215]

[213] Ibid, p. 628.

[214] Ibid, p. 633.

[215] Ibid, p. 636.

3.2.14 Article XII

The gist of Article XII lies in presenting the legal regime for visits to stationary installations on the Moon and other celestial bodies and its criteria, which are reciprocity and advanced notice and consultation. This article is another of the OST promoting the international cooperation principle in the exploration and use of outer space.[216]

The term "astronaut" is not used in the Article XII, thus a broader interpretation is on a table with hereby mentioned "representatives".[217] Guidance of interpretation of this term might provide the functional list used by the 1959 Antarctic Treaty because the clarification might be useful within implementation of this article on the national level.[218] The further implementation and possible visits referred to in the article would be beneficial to friendly relations among states.

3.2.15 Article XIII

The first paragraph of Article XIII considers states as actors of space activities, although the following paragraph admits a possibility of international organizations performing such activities. Since the adoption of the OST international cooperation was greatly intensified. The ambiguity in the treatment of international organizations arise from the varied wording in the article. It is worth noting, that international organizations are subjects to obligations under the OST, however, implicitly under Article XIV, there is no direct adherence to the OST for international organizations.[219]

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[216] VLASIC, I., "*The Space Treaty: A Preliminary Evaluation*", 55 CAL. L. REV. 507 (1967).

[217] Hobe S., *Cologne Commentary on space law: Outer space treaty,* p. 664.

[218] Ibid, p. 665.

[219] Ibid, p. 535.

3.2.16 Articles XIV – XVII

Articles XIV – XVIII are the non-substantive procedural articles dealing with the ratification, accession and withdrawing.[220] Article XIV provide clauses for signature, ratification, entry into force, the depositary governments and Treaty registration.[221] Article XV allows proposals of amendments to the Treaty by State Parties, which will enter into forces upon its acceptance.[222] Such an amendment must be accepted by a simple majority by the State Parties. According to following Article XVI providing the withdrawal procedure, State Party may withdraw from the Treaty on one year's notice.[223] And conclusive Article XVII para 1 grants an equal authenticity to the Chinese, English, French, Russian and Spanish texts.[224]

4. THE FURTHER CHALLENGES OF THE OUTER SPACE TREATY

The OST and its principles are the core of space legal system. Although in overview it is not a comprehensive and integral legal system due to lack of regulation of some issues that would be desirable. The key for the further development is the willingness of governments to cooperate towards this purpose. Besides to the instruments of the United Nations, there are other multilateral and bilateral norms regulating space activities which were concluded outside of the framework of the COPUOS, for instance, the relevant parts of the statutes of inter-governmental organizations – the European Space Agency and the International Telecommunication Union.[225] Also, there is a considerable number of states which has adopted national laws and internal legal regulations governing the space

[220] Ibid, p. 698.

[221] Article XIV, Outer Space Treaty.

[222] Article XIV, Outer Space Treaty.

[223] Article XVI, Outer Space Treaty.

[224] Article XVII, Outer Space Treaty.

[225] Tronchetti, *Fundamentals of Space Law and Policy*, p. 3.

activities and the activities of private entities under their jurisdiction. Nevertheless, the national jurisdiction shall stay in accordance with the international space law. The wider concept of space law has been emerging with respect to the agreements and part of the statues of international intergovernmental organizations, thus the international space law remains fragmented, which is a big challenge for lawyers and practitioners.[226]

4.1 THE OUTER SPACE TREATY AND GLOBALIZATION

The OST was concluded five decades ago. At the time the political, military and scientific landscape had different shape and goals. The Treaty was drafted at the Cold War era, which was led by the competition for supremacy between two superpowers with an objective to not allow to get the competition out of control - prevent extremes and preserve status quo. After the end of the Cold War, there was a need to reduce the potential global risk of the uncontrolled armed race given the emergence of new centers of power. Globalization and redistribution of power increased the insecurity and emergence of new threats of military and non-military nature, including terrorism. The main goal of nations, regardless of size, is to secure or improve their geopolitical situation, obtain or preserve access to natural resources and gain better protection from external influence or pressure. Despite a clear vision, that military conflict does not offer a solution for problems of today, many political leaders are pushed towards military build-ups. Regarding this behavior, dangerous tendencies are arising and the period of globalization does struggle with the risk of nuclear weapons proliferation. The development of science and technology does have a huge impact on the outer space matters. The use of outer space is no longer a privilege of a couple and the global economy is becoming more dependent on space-based assets.[227]

[226] Brünner, Soucek, *Outer Space in Society, Politics and Law* p. 241.

[227] BATSANOV, S., *The Outer Space Treaty then and now*, p. 54 in Celebrating the Space Age 50 Years of Space Technology, 40 Years of the Outer Space Treaty. Conference report. *UNIDIR/2007/4* [online]. 2007 [cit. 2017-09-13].

With respect to the previous, the reassessment of space security, which would allow to look at the problematics from more than security perspective, is needed[228], i.e. the financial aspects, in case of the military preponderance in space, which would definitely lead the state to undermine its own interest in other vital areas. Given the higher number of actors, there would be a variety of threats from different sides. Many proposals were made aiming at the prevention of the arms race as codes of conduct, transparency measures, comprehensive agreements and cooperative risk-reduction steps.[229]

4.2 GENERAL FRAMEWORK OF SPACE LAW

The hallmark of the Outer Space Treaty, called also "Treaty on General Principles"[230] is that it does not provide detailed content, which is obvious already from its extent - the Treaty consists of 17 Articles. As a comparison, the Law of the Sea Treaty spans hundreds of articles in length. Although, it is important to note that the Treaty never intended to be comprehensive, which is apparent from an elaboration of individual articles of the OST in separate UN treaties. Given the technology possibilities when the Treaty was drafted, it addresses issues that could arise after the technology will advance. Therefore, the interpretation is flexible as well as limited.[231] Within the 50 years since its establishment, the advancements in military, technology and critical infrastructure have appeared. New challenges, such as privatization of space exploration, the danger of excessive satellite debris, the emergence of quantum physics, mechanics and computing, had emerged and altogether form the understanding of Space of today. While the OST deals with some issues, there is a need of contemporization to have

[228] Ibid.

[229] Ibid.

[230] Answers from the Chair of the Space Law Committee of the International Law Association (ILA) to questions by the Chair of the Working Group of the LSC. *LEGAL SUBCOMMITTEE* [online]. 2015 [cit 2017-11-10].

[231] How an international treaty signed 50 years ago became the backbone for space law. *LOREN GRUSH* [online]. 2017 [cit 2017-08-25].

a direct link to deals issues of current period moreover to help with conflict de-escalation and crisis resolution.[232]

4.3 THE COMMON GOVERNANCE OF OUTER SPACE

The treaties governing outer space set important principles necessary for regulation of outer space activities, but there is a lack of cooperation between interested states to manage the outer space and improve the current legal framework.[233] The OST suffers from absence of system for consultation and regular interaction among its parties, thus no comprehensive reviews of the OST are on a table.[234] Although the dialogue among its State Parties does not necessarily mean a revision, more of a debate on its implementation and a review process. Some areas in the Treaty would be open for promotion within the dialogues, i.e. the universality since the participation is about half of the UN membership.[235]

Regarding the significantly increasing pace of development, the international community needs to be more attentive collectively and individually to all events and developments, which are affecting the status of the OST.[236]

Another reason for the necessity of the common governance of the outer space is that states were not able to conclude treaties without the possibility of modification which was recognized by the authors of the treaty through the provision of an amendment procedure, as it was the traditional method at the time. Nevertheless, the practice shows that the dealing within the international community about amendments is a constructive way only in a case of a crystal clear

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[232] Outer Space Treaty: 50 years later. *NATALLIA KHANIEJO* [online]. 2017 [cit 2017-09-18].

[233] Kerrest, *Outer Space as International Space: Lessons from Antarctica* p. 141.

[234] BATSANOV, S., *The Outer Space Treaty then and now*, p. 5 in Celebrating the Space Age 50 Years of Space Technology, 40 Years of the Outer Space Treaty. Conference report. *UNIDIR/2007/4* [online]. 2007 [cit. 2017-09-13].

[235] Ibid.

[236] Ibid.

wording and meaning of the amendment, which would lead to simultaneous acceptation by all State Parties.[237] Otherwise, there is a risk of reopening a number of issues and renegotiating the Outer Space Treaty itself meanwhile states presenting their own agendas. Therefore, the amendment procedure, which is admissible under Article XV of the OST, is quite radical and a softer mechanism is needed to "*tune the operation of the treaty as required. This tuning is particularly important in the current situation of flux, in contrast to the status quo that had existed when the treaty was created.*"[238] The OST sets out fundamental principles, which should be preserved in its integrity. At the moment there is no consensus within COPUOS on reopening the OST or drafting new international convention.[239]

4.4 THE LONG-TERM SUSTAINABILITY OF SPACE ACTIVITIES

The future of the outer space activities of any kind relies on the environmental issues and security concerns. Space exploration is a polluting industry in all phases.[240] The soft law concerning this area has been undertaken by the international community, although the hard law binding obligation in a form of a convention or a treaty might be preferable in view of future perspective.

4.4.1 Environmental Problems Related to Space Activities

The environmental politics in space law is insufficient as the topic had marginal attention at the time of the Cold War.[241] As examples of the environmental

[237] Lyall, Larsen, *Space Law A Treatise,* p. 58.

[238] Celebrating the Space Age 50 Years of Space Technology, 40 Years of the Outer Space Treaty. Conference report. *UNIDIR/2007/4* [online]. 2007 [cit. 2017-09-13], p. 8.

[239] Ibid, p. 9.

[240] VIIKARI, L., *The Environmental Element in Space Law: Assessing the Present and Charting the Future,* Martinus Nijhoff Publishers, Vol. 3, 2008, p. 30. (hereinafter "Viikari, *The Environmental Element in Space Law*")

[241] Ibid, p. 55.

problems related to space activities may be mentioned the rising amount of space debris and nuclear contamination closely connected to the space debris issue, due to a possibility of accidental collision of satellites followed by an explosion.[242] The Space Liability Convention deals with a damage, but it does not approach the damage by its nature. The Convention does not consider "a damage" as a damage to the environment. There is a need for a victim state to apply for compensation, although the damage caused in an international space or high seas no state would be entitled for such a claim.[243]

4.4.2 Sustainable Development in Outer Space

The basic goal of the principle of sustainable development is to find a balance between economic development and environmental protection that will be sustainable for present and the future humankind.[244] The sustainable development principle has to be implemented within the context of the outer space law.[245] This goal is not possible to reach only by an adjustment of technical norms, to which are mostly directed the on-going initiatives. Although in accordance with the Article III of the OST applicable law includes norms not only related specifically to space, but it might be an option to look at the principles of international environmental law highly expanding in recent years.[246]

Currently the Article IX of the OST imposes a general duty of states to avoid harmful contamination of outer space, which contributes to the environmentalist approach.[247]

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[242] Ibid, p. 45.

[243] Kerrest, *Outer Space as International Space: Lessons from Antarctica,* p. 135.

[244] Viikari, *The Environmental Element in Space Law,* p. 129.

[245] Ibid, p. 144.

[246] BRECCIA, P., "*Article III of Outer Space Treaty and Its Relevance in the International Space Legal Framework*", 67th International Astronautical Congress (IAC), International Astronautical Federation (2016), p. 8.

[247] Viikari, *The Environmental Element in Space Law,* p. 145.

4.4.3 Space Debris

The 50 years of using the space environment for various purposes led among others to increase the amount of space debris and the several collisions or conjunctions in orbit. The term "space debris" indicates a general term, which refers to all tangible man-made material in space other than functional space objects[248] and it is the most prominent environmental problem connected with space activities.[249]

Both, governments of states and private entities continuously place in the outer space number of satellites omitting the presence of space debris[250] - at present, the 95 % of space objects are the nonfunctional objects, such a dead satellites, rocket parts etc.[251]

First explicit information about the issue had brought up the Outer Space Affairs Division in 1979 in its study Mutual Relations of Space Missions. Although the space debris issues have been in focus for many years there is no adequate international framework to deal with the legal issues raised. Among others, it goes hand in hand with the pursuit to avoid the disadvantages and unbalanced costs to industry in certain countries.[252]

The OST refers to the problems with the space debris in three articles; i. Article VI related to international responsibility for national activities in outer space, ii. Article VII dedicated to the international liability of a state and iii. Article IX

[248] Space debris includes objects no longer serving a useful purpose, such as inactive satellites, ejected instrument covers, upper stages (orbital transfer stages), fragments thereof, etc.
Viikari, *The Environmental Element in Space Law,* p. 31.

[249] Ibid.

[250] Tronchetti, *Fundamentals of Space Law and Policy*, p. 87.

[251] These Are The Countries on Earth With The Most Junk in Space. *DAVE MOSHER & ANDY KIERSZ* [online]. 2017 [cit 2017-09-18].

[252] Space debris: The legal issues. *JOANNE WHEELER* [online]. 2014 [cit 2017-09-15].

allowing states to request consultation with a state suspected activity of potentially harmful character,[253] requiring the states to avoid harmful contamination of outer space and offering a minimal guidance to the mitigation of space debris at state level by conducting the state's activities in correspondence with the interests of all State Parties[254].

The wording and interpretation are found to be quite difficult given the broadness of the Articles and missing definition of the term "space debris"[255] within international legal instruments, although several definition of it have been developed at the international level. For instance, the Scientific and Technical Subcommittee of the COPUOS in the Technical Report on Space Debris (1999) uses the definition: "*Space debris are all manmade objects, including their fragments and parts, whether their owners can be identified or not, in Earth orbit or re-entering the dense layers of the atmosphere that are non-functional with no reasonable expectation of their being able to assume or resume their intended functions or any other functions for which they are or can be authorized*."[256]

The Space Liability and Registration Conventions address the liability of a state for a damage. Although the UN treaties touch some of the issues related to the space debris, many other debris-oriented challenges remain unsolved, for instance, there is a lack of challenging the need for measures to reduce the emergence of the new orbital debris.

COPUOS focused on the topic of the minimizing the production of orbital debris by the adoption of the Space Debris Mitigation Guidelines in 2007 by its Scientific and Technical Subcommittee, which became an agenda item in for the first time

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[253] NATIONAL RESEARCH COUNCIL. *Orbital Debris: A Technical Assessment* (1995), Washington, DC: The National Academies Press, p. 185. (hereinafter "National Research Council, *Orbital Debris*")

[254] Space debris: The legal issues. *JOANNE WHEELER* [online]. 2014 [cit 2017-09-15].

[255] National Research Council, *Orbital Debris,* p. 186.

[256] Technical Report on Space Debris. Scientific and Technical Subcommittee of the UN COPUOS. *NASA* [online]. 1999 [cit 2017-11-29], paragraph 6.

in 1994.[257] Also the activities outside of the UN influence possible space debris regulation, such as the International Law Association, the Inter-Agency Space Debris Coordination Committee and the International Telecommunication Union.[258]

5. FUTURE OF THE OUTER SPACE TREATY

Space law, among other fields, mostly depends on the technology and science development. This branch of law is technology-oriented mostly because it expands the possibilities of human activity in space, although this field is not always predictable as it would be desired. The pace indicated by the technological progress leads to a continuous necessity of reassessment and revision of space law and at this point other fields play role as well, such as politics and science. At this stage, the crucial step represents the cooperation among the mentioned fields.

Space law is considered to be a changeable branch of law, which is not sufficiently reflected by the decision making procedure of the United Nations, which significantly impedes the reach of the applicable law.[259] The UN treaties represent the only hard core that comprises of a narrow set of regulations. The United Nations Committee on the Peaceful Uses of Outer Space and the Subcommittees decide by the consensus of all member state. This leads to the vague wording and broad margin for interpretation of an accepted document as a result of an agreement of all states.[260] This situation reflects the General Assembly, which deals with the topics on the level of non-binding resolutions. Then again there is an effect on further fragmentation of the space law sources and the legal uncertainty.[261]

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[257] Celebrating the Space Age 50 Years of Space Technology, 40 Years of the Outer Space Treaty. Conference report. *UNIDIR/2007/4* [online]. 2007 [cit. 2017-09-13], p. 9.

[258] National Research Council, *Orbital Debris,* p. 186.

[259] Brünner, Soucek, *Outer Space in Society, Politics and Law* p. 696.

[260] Ibid, 242.

[261] Ibid.

Although the supportive argument states, that the resolutions might contribute to the emergence of new international customary law. Nevertheless, real status of these resolutions remains questionable and the key notions of outer space legislation need to be review and the UN treaties still require regular reassessments.[262]

These 50 years have shown that new international regulations are necessary. Especially the new trends would deserve to be reflected by the international community, such as the increasing number of states active in space matters, the danger causing the orbital debris and the projects aimed at the Moon and other celestial bodies and its resources.[263]

The OST and its structure and content offer two points of views. The first presents the OST as the cornerstone of the outer space law, a result of successful diplomatic negotiation. The extent and the not-to-dig-into-details approach constitute the charter of the outer space, as it should be treated. The OST is presented as a fundamental source of space law, on which basis the additional treaties were created. Its basic principles were translated into other legally binding agreements, which are grouped around the OST. The general concept of the Treaty does prevent from exhaustion of its potential; it remains very much progressive laying the legal foundations for a range of new activities.[264] Due to the new challenges and changes within the last 50 years, the OST's State Parties should pay more attention to preserve the Treaty's authority and strengthen its role instead of disassembling the foundations.

The later view highlights the vagueness of its lexicon, the lack of definition and terms and its inadequacy to cope with concurrent challenges due to, simply said, its age and different circumstances, which have prevailed at the time

[262] Ibid.

[263] Kerrest, *Outer Space as International Space: Lessons from Antarctica*, p. 137.

[264] BATSANOV, S., *The Outer Space Treaty then and now*, p. 4 in Celebrating the Space Age 50 Years of Space Technology, 40 Years of the Outer Space Treaty. Conference report. *UNIDIR/2007/4* [online]. 2007 [cit. 2017-09-13].

of its creation. This examination inclines to the reevaluation of the Treaty and reassessment of some of its articles.

The way of addressing the emerged challenges does not go through destroying the foundations we are trying to build on. To contribute to stability and certainty of the space law regime is necessary to promote the basics and encourage states to participate and implement the UN treaties concerning the space matters, which is one of the efforts undertaken by the Legal Subcommittee of COPUOS.[265] The OST is not an ill-conceived contract and it does not need a complete revision. Its role nowadays rests mainly in its certainty as a whole, which shall not be undermined.

5.1 INTERGOVERNMENTAL COOPERATION

Apart from legal instruments of international law, cooperation among states in the outer space matters is on the bilateral and multilateral level, for instance, the activities of the International Space Station.[266] National space laws specify and implement the rules of the international law while being in compliance with it. However, even that 22 states made the steps towards the national legislation, there is no common standard as an instrument of harmonization for national legislation on this matter.[267] Each state presents their needs and considers their own interests in the national space legislation. Some of the states (such as the United Kingdom, France, Belgium, Australia) possess comprehensive dedicated national space law and others (China, India, the Russian Federation, the United States) combine national legal instruments from administrative legislative to decrees and laws.[268]

[265] Tronchetti, *Fundamentals of Space Law and Policy,* p. 83.

[266] Kerrest, *Outer Space as International Space: Lessons from Antarctica*, p. 135.

[267] Brünner, Soucek, *Outer Space in Society, Politics and Law* p. 441.

[268] von der Dunk, Tronchetti, *Handbook of Space Law*, p. 185.

However, it is traceable that exchange of information on the issues of national space legislation and various initiatives on intergovernmental level leads to already more coherent approach to national regulation, for instance, the European countries which recently adopted the national legislation on the matter covers its substantial part equally.[269]

The enhancement (not aiming exclusively at the national legislation), which should be made as soon as possible, lies in the strengthening the international intergovernmental cooperation, due to the preamble of the OST, which presents the cooperation as a contribution to the development of mutual understanding. The cooperation and a dialogue would lead to encouraging the states to ratify the OST, at minimum. Moreover, the wider dialogue exceeds the role of the discussion among states, it would affect the education, transparency, control over the space matters and possibly emerging new joint space projects.[270] The awareness about the important principles, listed in the UN treaties, such as non-use of force or the non-militarization of outer space, would increase. It also works as a prevention of an emergence of possible armed conflict. The most important part rises and falls within the United Nations as a central intergovernmental body.

5.2 SOFT LAW

At present, the adoption of soft law instruments is the most viable option for addressing the space issues among the international community. It offers certain advantages, in contrast with the hard law, such as addressing the private entities and easier process of adaptation. Soft law documents are typically formulated within the inter-governmental organizations[271] in the form of GA Resolutions, Guidelines, Transparency and Confidence-building Measures, Declarations, Codes

[269] Ibid.

[270] BATSANOV, S., *The Outer Space Treaty then and now*, p. 34 in Celebrating the Space Age 50 Years of Space Technology, 40 Years of the Outer Space Treaty. Conference report. *UNIDIR/2007/4* [online]. 2007 [cit. 2017-09-13].

[271] Tronchetti, *Fundamentals of Space Law and Policy*, 44.

of Conduct etc. However, doubts arise among authors in the context of most urgent challenges of today and efficiency of soft law within the topic of space debris and military uses.[272] The violation of soft law means is not unlawful; however, it could be in contrary to 'best practice', which may, as a result, lead to its enforcement by peer pressure.[273]

COPUOS members did not agree on any new binding international norm, although some authors insist on its necessity due to convincing reasons, primarily to ensure the security and safety of space activities, which are dependent on long-term sustainability.[274] In any case, the emergence of the new set of regulations will require certain legitimacy and universality, which ensures only the global organizations like the United Nations.

Manfred Lachs stated a comment valid and suitable for the future of space law in the 21st century. Within the introduction of the Declaration of Legal Principles Governing the Activities of States in the Exploration and Use of Outer Space to the General Assembly of the United Nations in December of 1963, he said that *"it ought to be made clear that principles as enumerated do not constitute a closed chapter. We have to welcome what was achieved and strive for further agreements. The law of outer space is in its formative stage only. We must proceed with prudence and care-take full benefit of agreements reached ... make them a living reality and continue with our efforts for further agreements."*[275]

[272] Space Law Treaties and Soft Law Development. United Nations/China /APSCO Workshop on Space Law. *IRMGARD MARBOE* [online]. 2014 [cit 2017-11-04].

[273] Ibid.

[274] von der Dunk, Tronchetti, *Handbook of Space Law,* p. 27.

[275] LACHS, M., *The Law of Outer Space: An Experience in Contemporary Law-making,* Martinus Nijhoff Publishers, 2010, p. 128.

6. CONCLUSION

The respective articles of the Outer Space Treaty do not deal with the space activities and current topics of the 21st century to a satisfactory extent. The provisions are not responsive enough. Questions arises along with the text of the Treaty, and actually are arising since its adoption, for instance, in connection with the absenting definitions. Currently, it is not possible to argument to an emerged legal issue, that no law exists to govern it. The international community has agreed that it is necessary to find a solution of a consistent character responding to various issues emerged within the last 50 years.

It is indisputable, that the new technological development requires the appropriate legal framework. The international legal instruments of space law are inadequate in various ways, for example, at the stage that international community does not share uniform opinion on certain issue like the non-appropriation principle in Article II with connection to the appropriation of resources, while the national legislation is more flexible, given the Luxembourg law, ensuring the rights of private operators to the resources extracted in space. Also, the Article IV does not adequately deal with the current issues relating to the weaponization of space, which may constitute a threat to humankind. The Article IX offers an insufficient assurance of the sustainable development principle, which is crucial at this time and has to be implemented within the context of the outer space law.

The Outer Space Treaty will continue to remind of the ideals embodied in its text with regard to the exploration of outer space. The necessity of more detailed international legal instrument is foreseeable in nearly future. However, the scholars agree, that opening the OST for amendments may not be the best solution. The amendments would have a major impact on the Treaty. This option may undermine the certainty of Treaty's widespread acceptance, mostly through the potential withdrawal of memberships of states and grinding the already laid principles. The belief of the author is, that within the presented progress, the existing framework is extremely valuable and it should be preserved in its present form.

The normative regulation of the current legal framework does not have to cross the Outer Space Treaty. The interest is to create sources as technically-based guidelines, recommendations and codes of conduct in connection with various topics as is usual at present within developing new norms. Although initiatives like recommendations fall under the soft law, it is essential at this point in the development of a future binding regulation. The ambiguities in the current legal framework must be clarified, but without destabilizing the current system.

Moreover, the soft law imposes certain political and moral value, it is expected a state following such rules, which may be seen negatively in case they do not. Also it might set grounds for premises later developed into customary law.

Besides, with regard to the Article III of the OST, there is a strong interconnection of space law with other branches of public international law. Even if the nature of space law is specific and very distant, the interlinks do have a key role. For instance, in context of the issues concerning the environmental situation in outer space, the rules and principles of international environmental law should be exemplar for dealing with specific issues in space, with great attention to its features.

The access "from outside", to govern burning topics with new binding conventions, is quite complicated given the unwillingness of states to come to solutions due political and other reasons. Therefore, the path "from inside", through international organizations and advanced international cooperation, might be the less aggressive way to fill the gaps and reach consensus, at least within a certain amount of states, for now. The probable outcome is realistic, mostly because of the inclination of states to reach consensus in debates, even in a small number. This is deductible from the expansion of international bodies and organizations and their agendas. Regarding provisions of the Outer Space Treaty, some issues might even benefit more from the interstate agreements.

The answer to current concerns does not consists of changing or replacing the Outer Space Treaty. Its greatest benefit lies in the stability it provides, and it should not be taken away. The current need, which international community seeks at present within the extensive debates on the issues – the cooperation among states – represents, after all, the fundamental principle which did not age a day.

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8. LIST OF ANNEXES

ANNEX 1: Treaty on Principles Governing the Activities of States in the Exploration and Use of Outer Space, including the Moon and Other Celestial Bodies

The States Parties to this Treaty,

Inspired by the great prospects opening up before mankind as a result of man's entry into outer space,

Recognizing the common interest of all mankind in the progress of the exploration and use of outer space for peaceful purposes,

Believing that the exploration and use of outer space should be carried on for the benefit of all peoples irrespective of the degree of their economic or scientific development,

Desiring to contribute to broad international co-operation in the scientific as well as the legal aspects of the exploration and use of outer space for peaceful purposes,

Believing that such co-operation will contribute to the development of mutual understanding and to the strengthening of friendly relations between States and peoples,

Recalling resolution 1962 (XVIII), entitled "Declaration of Legal Principles Governing the Activities of States in the Exploration and Use of Outer Space", which was adopted unanimously by the United Nations General Assembly on 13 December 1963,

Recalling resolution 1884 (XVIII), calling upon States to refrain from placing in orbit around the earth any objects carrying nuclear weapons or any other kinds of weapons of mass destruction or from installing such weapons on celestial bodies, which was adopted unanimously by the United Nations General Assembly on 17 October 1963,

Taking account of United Nations General Assembly resolution 110 (II) of 3 November 1947, which condemned propaganda designed or likely to provoke or encourage any threat to the peace, breach of the peace or act of aggression, and considering that the aforementioned resolution is applicable to outer space,

Convinced that a Treaty on Principles Governing the Activities of States in the Exploration and Use of Outer Space, including the Moon and Other Celestial Bodies, will further the purposes and principles of the Charter of the United Nations,

Have agreed on the following:

Article I

The exploration and use of outer space, including the moon and other celestial bodies, shall be carried out for the benefit and in the interests of all countries, irrespective of their degree of economic or scientific development, and shall be the province of all mankind.

Outer space, including the moon and other celestial bodies, shall be free for exploration and use by all States without discrimination of any kind, on a basis of equality and in accordance with international law, and there shall be free access to all areas of celestial bodies.

There shall be freedom of scientific investigation in outer space, including the moon and other celestial bodies, and States shall facilitate and encourage international co-operation in such investigation.

Article II

Outer space, including the moon and other celestial bodies, is not subject to national appropriation by claim of sovereignty, by means of use or occupation, or by any other means.

Article III

States Parties to the Treaty shall carry on activities in the exploration and use of outer space, including the moon and other celestial bodies, in accordance with international law, including the Charter of the United Nations, in the interest of maintaining international peace and security and promoting international co-operation and understanding.

Article IV

States Parties to the Treaty undertake not to place in orbit around the earth any objects carrying nuclear weapons or any other kinds of weapons of mass destruction, install such weapons on celestial bodies, or station such weapons in outer space in any other manner.

The moon and other celestial bodies shall be used by all States Parties to the Treaty exclusively for peaceful purposes. The establishment of military bases, installations and fortifications, the testing of any type of weapons and the conduct of military manoeuvres on celestial bodies shall be forbidden. The use of military personnel for scientific research or for any other peaceful purposes shall not be prohibited.

The use of any equipment or facility necessary for peaceful exploration of the moon and other celestial bodies shall also not be prohibited.

Article V

States Parties to the Treaty shall regard astronauts as envoys of mankind in outer space and shall render to them all possible assistance in the event of accident, distress, or emergency landing on the territory of another State Party or on the high seas. When astronauts make such a landing, they shall be safely and promptly returned to the State of registry of their space vehicle.

In carrying on activities in outer space and on celestial bodies, the astronauts of one State Party shall render all possible assistance to the astronauts of other States Parties.

States Parties to the Treaty shall immediately inform the other States Parties to the Treaty or the Secretary-General of the United Nations of any phenomena they discover in outer space, including the moon and other celestial bodies, which could constitute a danger to the life or health of astronauts.

Article VI

States Parties to the Treaty shall bear international responsibility for national activities in outer space, including the moon and other celestial bodies, whether such activities are carried on by governmental agencies or by non-governmental entities, and for assuring that national activities are carried out in conformity with the provisions set forth in the present Treaty. The activities of non-governmental entities in outer space, including the moon and other celestial bodies, shall require authorization and continuing supervision by the appropriate State Party to the Treaty. When activities are carried on in outer space, including the moon and other celestial bodies, by an international organization, responsibility for compliance with this Treaty shall be borne both by the international organization and by the States Parties to the Treaty participating in such organization.

Article VII

Each State Party to the Treaty that launches or procures the launching of an object into outer space, including the moon and other celestial bodies, and each State Party from whose territory or facility an object is launched, is internationally liable for damage to another State Party to the Treaty or to its natural or juridical persons by such object or its component parts on the Earth, in air or in outer space, including the moon and other celestial bodies.

Article VIII

A State Party to the Treaty on whose registry an object launched into outer space is carried shall retain jurisdiction and control over such object, and over any personnel thereof, while in outer space or on a celestial body. Ownership of objects launched into outer space, including objects landed or constructed on a celestial body, and of their component parts, is not affected by their presence in outer space or on a celestial body or by their return to the Earth. Such objects or component parts found beyond the limits of the State Party to the Treaty on whose registry they are carried shall be returned to that State Party, which shall, upon request, furnish identifying data prior to their return.

Article IX

In the exploration and use of outer space, including the moon and other celestial bodies, States Parties to the Treaty shall be guided by the principle of co-operation and mutual assistance and shall conduct all their activities in outer space, including the moon and other celestial bodies, with due regard to the corresponding interests of all other States Parties to the Treaty. States Parties to the Treaty shall pursue studies of outer space, including the moon and other celestial bodies, and conduct exploration of them so as to avoid their harmful contamination and also adverse changes in the environment of the Earth resulting from the introduction of extraterrestrial matter and, where necessary, shall adopt appropriate measures for this purpose. If a State Party to the Treaty has reason to believe that an activity or experiment planned by it or its nationals in outer space, including the moon and other celestial bodies, would cause potentially harmful interference with activities of other States Parties in the peaceful exploration and use of outer space, including the moon and other celestial bodies, it shall undertake appropriate international consultations before proceeding with any such activity or experiment. A State Party to the Treaty which has reason to believe that an activity or experiment planned by another State Party in outer space, including the moon and other celestial bodies, would cause potentially harmful interference with activities in the peaceful exploration and use of outer space, including the moon and other celestial bodies, may request consultation concerning the activity or experiment.

Article X

In order to promote international co-operation in the exploration and use of outer space, including the moon and other celestial bodies, in conformity with the purposes of this Treaty, the States Parties to the Treaty shall consider on a basis of equality any requests by other States Parties to the Treaty to be afforded an opportunity to observe the flight of space objects launched by those States.

The nature of such an opportunity for observation and the conditions under which it could be afforded shall be determined by agreement between the States concerned.

Article XI

In order to promote international co-operation in the peaceful exploration and use of outer space, States Parties to the Treaty conducting activities in outer space, including the moon and other celestial bodies, agree to inform the Secretary-General of the United Nations as well as the public and the international scientific community, to the greatest extent feasible and practicable, of the nature, conduct, locations and results of such activities. On receiving the said information, the Secretary-General of the United Nations should be prepared to disseminate it immediately and effectively.

Article XII

All stations, installations, equipment and space vehicles on the moon and other celestial bodies shall be open to representatives of other States Parties to the Treaty on a basis of reciprocity. Such representatives shall give reasonable advance notice of a projected visit, in order that appropriate consultations may be held and that maximum precautions may betaken to assure safety and to avoid interference with normal operations in the facility to be visited.

Article XIII

The provisions of this Treaty shall apply to the activities of States Parties to the Treaty in the exploration and use of outer space, including the moon and other celestial bodies, whether such activities are carried on by a single State Party to the Treaty or jointly with other States, including cases where they are carried on within the framework of international intergovernmental organizations.

Any practical questions arising in connection with activities carried on by international intergovernmental organizations in the exploration and use of outer space, including the moon and other celestial bodies, shall be resolved by the States Parties to the Treaty either with the appropriate international organization or with one or more States members of that international organization, which are Parties to this Treaty.

Article XIV

1. This Treaty shall be open to all States for signature. Any State which does not sign this Treaty before its entry into force in accordance with paragraph 3 of this article may accede to it at anytime.

2. This Treaty shall be subject to ratification by signatory States. Instruments of ratification and instruments of accession shall be deposited with the Governments of the United Kingdom of Great Britain and Northern Ireland, the Union of Soviet Socialist Republics and the United States of America, which are hereby designated the Depositary Governments.

3. This Treaty shall enter into force upon the deposit of instruments of ratification by five Governments including the Governments designated as Depositary Governments under this Treaty.

4. For States whose instruments of ratification or accession are deposited subsequent to the entry into force of this Treaty, it shall enter into force on the date of the deposit of their instruments of ratification or accession.

5. The Depositary Governments shall promptly inform all signatory and acceding States of the date of each signature, the date of deposit of each instrument of ratification of and accession to this Treaty, the date of its entry into force and other notices.

6. This Treaty shall be registered by the Depositary Governments pursuant to Article 102 of the Charter of the United Nations.

Article XV

Any State Party to the Treaty may propose amendments to this Treaty. Amendments shall enter into force for each State Party to the Treaty accepting the amendments upon their acceptance by a majority of the States Parties to the Treaty and thereafter for each remaining State Party to the Treaty on the date of acceptance by it.

Article XVI

Any State Party to the Treaty may give notice of its withdrawal from the Treaty one year after its entry into force by written notification to the Depositary Governments. Such withdrawal shall take effect one year from the date of receipt of this notification.

Article XVII

This Treaty, of which the English, Russian, French, Spanish and Chinese texts are equally authentic, shall be deposited in the archives of the Depositary Governments. Duly certified copies of this Treaty shall be transmitted by the Depositary Governments to the Governments of the signatory and acceding States.

IN WITNESS WHEREOF the undersigned, duly authorized, have signed this Treaty.

DONE in triplicate, at the cities of London, Moscow and Washington, the twenty-seventh day of January, one thousand nine hundred and sixty-seven.

THE OUTER SPACE TREATY IN THE CONTEXT OF 21ST CENTURY

ABSTRACT

The Outer Space Treaty is the fundamental legal document of space law and this year it celebrates 50 years since its adoption. Questions are being raised among the international community about the relevance of the Treaty in the context of 21st century mostly given the completely different conditions at the time of its adoption and at present. Reasons for such a debate is the current development in the field of space and technology, which is not covered by the Outer Space Treaty or any other relevant binding convention. New possibilities to explore space are emerging, especially among the private actors and activities vary given its nature, from commercial to military. And within the 50 years these new options also slowly contribute to serious environmental problems, which were not of such importance and priority as they are now. Besides these issues, the space law is characterized by its high fragmentation and no common standard for national legislation in this field. Given these challenges the scholars and specialist agree, that the contemporary legislation does not provide a necessary framework to ensure the peaceful use of space and its future safety. The question is, what future will have the Outer Space Treaty in context of the circumstances? This thesis introduces the space law and its legal framework, analyses the Outer Space Treaty, its history, Articles, compares the field to other laws, applies its provisions on the problematic issues of the 21st Century and addresses issues which touch the Outer Space Treaty within the international community. The possible outcomes are stated in the thesis with a presentation of the most acceptable direction for the future heading of the Outer Space Treaty preferred by the author based on the studied problematic and literature.

KOSMICKÁ SMLOUVA V KONTEXTU 21. STOLETÍ

ABSTRAKT

Kosmická smlouva je základním právním dokumentem kosmického práva a tento rok oslavuje 50 let od jejího přijetí. V rámci mezinárodního společenství vyvstávají dotazy o významu této smlouvy v kontextu 21. století, která se v době jejího přijetí potýkala s zcela odlišnými podmínkami než v současnosti. Důvodem pro takovou diskusi je především současný vývoj v oblasti vesmíru a technologie, jenž není součástí Kosmické smlouvy či jiné příslušné závazné úmluvy. Nové možnosti prozkoumání vesmíru se nadále rozšiřují, a to zejména na poli soukromých subjektů, přičemž činnosti se liší vzhledem k jejich povaze, od komerčních až po vojenské. Nicméně, během těchto 50 let tyto nové možnosti také pomalu přispívají k závažným problémům v oblasti životního prostředí, které nebyly natolik prioritní, jako jsou nyní. Mimo jiné je kosmické právo charakterizováno vysokou roztříštěností a neexistencí společného standardu pro vnitrostátní právní předpisy v této oblasti. Vzhledem k těmto výzvám, kterým kosmické právo čelí, specialisté a odborná veřejnost se shoduje, že současná legislativa neposkytuje nezbytný rámec k zajištění mírového využití kosmického prostoru a budoucí bezpečnosti. Otázkou je, jaká tedy čeká budoucnost Kosmickou smlouvu v kontextu těchto okolností? Práce předestírá kosmické právo a jeho právní rámec, analyzuje Kosmickou smlouvu, její historii, články, porovnává danou právní oblast s ostatními, aplikuje ustanovení Smlouvy na problematické otázky 21. století a řeší témata, které se dotýkají Smlouvy o vesmíru v kontextu mezinárodního společenství. Možné výstupy jsou uvedeny v diplomové práci s uvedením nejpřijatelnějšího směru pro budoucí směřování Kosmické smlouvy, který autorka upřednostňuje na základě studované problematiky a literatury.

THE OUTER SPACE TREATY IN THE CONTEXT OF 21ST CENTURY

KEY WORDS

Space Law - The Outer Space Treaty - Article II - Article IV - 50 Years - Future

KOSMICKÁ SMLOUVA V KONTEXTU 21. STOLETÍ

KLÍČOVÁ SLOVA

Kosmické právo - Kosmická smlouva - Článek II - Článek IV - 50 let - Budoucnost